FLIGHT

First Aero Weekly in the World.

Founder and Editor : STANLEY SPOONER.

A Journal devoted to the Interests, Practice and Progress of Aerial Locomotion and Transport.

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EDITORIAL COMMENT.

IT is with the greatest satisfaction that we regard the active campaign of the newspaper Press respecting the present most unsatisfactory position of the Air Board in its relation to the flying services. The *Daily Telegraph*, on Monday last, published a leading article on the subject, in the main lines of which we concur. The article in question traces the developments which led up to the establishment of the Air Board, whose future is now trembling in the balance, and ends with the cogent remark that the nation has one desire, and one desire only, and that is that both services—the R.N.A.S. and the R.F.C.—shall be provided with the most efficient machines and administered with due regard to the needs of war. It cares nothing for personal or departmental controversies, except so far as the public interests are affected.

The Air Board Crisis.

That appears to sum up the whole situation in the fewest possible words. The question, however, for the moment is, how are these ideals to be attained with the minimum of delay? We endeavoured to answer the question to the best of our ability when writing on this subject in last week's issue of this journal. In the light of what is being said now, it will assist in the discussion of the points at issue if we repeat what we then wrote, which was this:

"What is required is not the discussion of academic attempts to reconcile conflicting interests, but the immediate application of a drastic remedy which will relegate existing competition and overlapping to the place they belong. That remedy we believe to be the formation of a central air authority—whether it be the Air Board reconstituted or otherwise—not to interfere initially with the tactical dispositions of either of the two Air Services, but with absolute power in all matters save this and internal administration. It should have—as most people thought the Air Board would have—complete control over all contracts for machines and supplies, thus putting an end to the present ruinous competition between the two services. In or after consultation with the Admiralty and the Army Council it should deal with strategical dispositions in so far as the definition of what may best be described as the respective spheres of activity of the two services are concerned."

The *Telegraph* does not go quite all the way along these lines. What it suggests—while it admits that this is the line of least resistance and a not altogether satisfactory solution—is the appointment of a strong Committee of the Ministry of Munitions to order material for both services. We do not regard the idea as a practical solution at all, since we are most strongly of opinion that what is required is not a committee of any Ministry, but an authority separate and distinct, whose sole concern should be the Air Services. If we were concerned only with the present, such a Committee might do well enough, but we have had quite enough of stop-gaps. We must have an eye to the future, and what we therefore want is a body which, however much its powers of executive may have to fall short for the present of those of a Third Service, will at least form the nucleus from which such a service must ultimately develop. In the nature of things, a mere committee of a temporary Ministry could not fill the bill. From that point of view alone, we conceive that what must be urgently pressed for is an authority on the lines laid down in the quotation we have printed above. That is the irreducible minimum with which the nation can be satisfied.

Lord Montagu of Beaulieu, in the *Times*, is apparently at one with us on this vital question. He puts it that it may be advisable that during the war the

Air Board should have no power of executive or of influencing the dispositions of personnel, and no-one would claim for it any power as regards actual operations in the field. But it might well ask for and make a point of obtaining, even at the cost of resignations or a stiff Parliamentary fight, the power of supply. There is no reason why it should not become the Q.M.G. Department of the Air Services.

This is exactly on all fours with what we wrote last week. It will do well enough for a start, but it has got to be done at once. As Lord Montagu himself says :—

" If the Air Board in the next few weeks is not given more powers, and if it is asked to go on acting in a subsidiary and merely advisory capacity, there will be another crisis in the history of national aviation. The Government will find it difficult after two failures to appease the nation or Parliament by suggesting the appointment of yet a third body with no real powers, merely as a sop to clamour and as an excuse for delay."

The whole question is due to be debated in Parliament, and possibly we shall then see where we are. Whether the Government will rise to the occasion remains to be seen. Certain influences appear to be at work which render it at least a little doubtful if anything like serious reform is intended by the inner official circles. Were it not so, we cannot conceive that the Parliamentary Air Committee would have considered it necessary to take the extreme step—for we regard it as such, under all the circumstances—of addressing a letter to all the Lord Mayors, Lord Provosts and Mayors of county boroughs in the Three Kingdoms, asking them to write their approval to the Premier of the resolution passed by the Committee after its meeting with Mr. Balfour last week. This resolution was phrased as follows :—

" In view of the discussion which took place at a meeting of the Parliamentary Air Committee in the House of Commons to-day, the Executive Committee unanimously reaffirms its strong conviction that the Air Board should be given more extensive and immediate executive powers for the development of both air services."

In some quarters it is said that the Government is riding for a fall. Is it, we wonder ? And if so, will it " take a toss " over the Air Board controversy ?

* * *

Honours for the Dead.

The War Office has made still another announcement regarding the subject of honouring those who have laid down their lives in the service of the country. The announcement is to the effect that any medal issued in commemoration of the war, gained by officers or men who have died, will be given to the dead heroes' next-of-kin. It is another step in the right direction, but is very far from disposing of the points traversed by us last week, and on previous occasions.

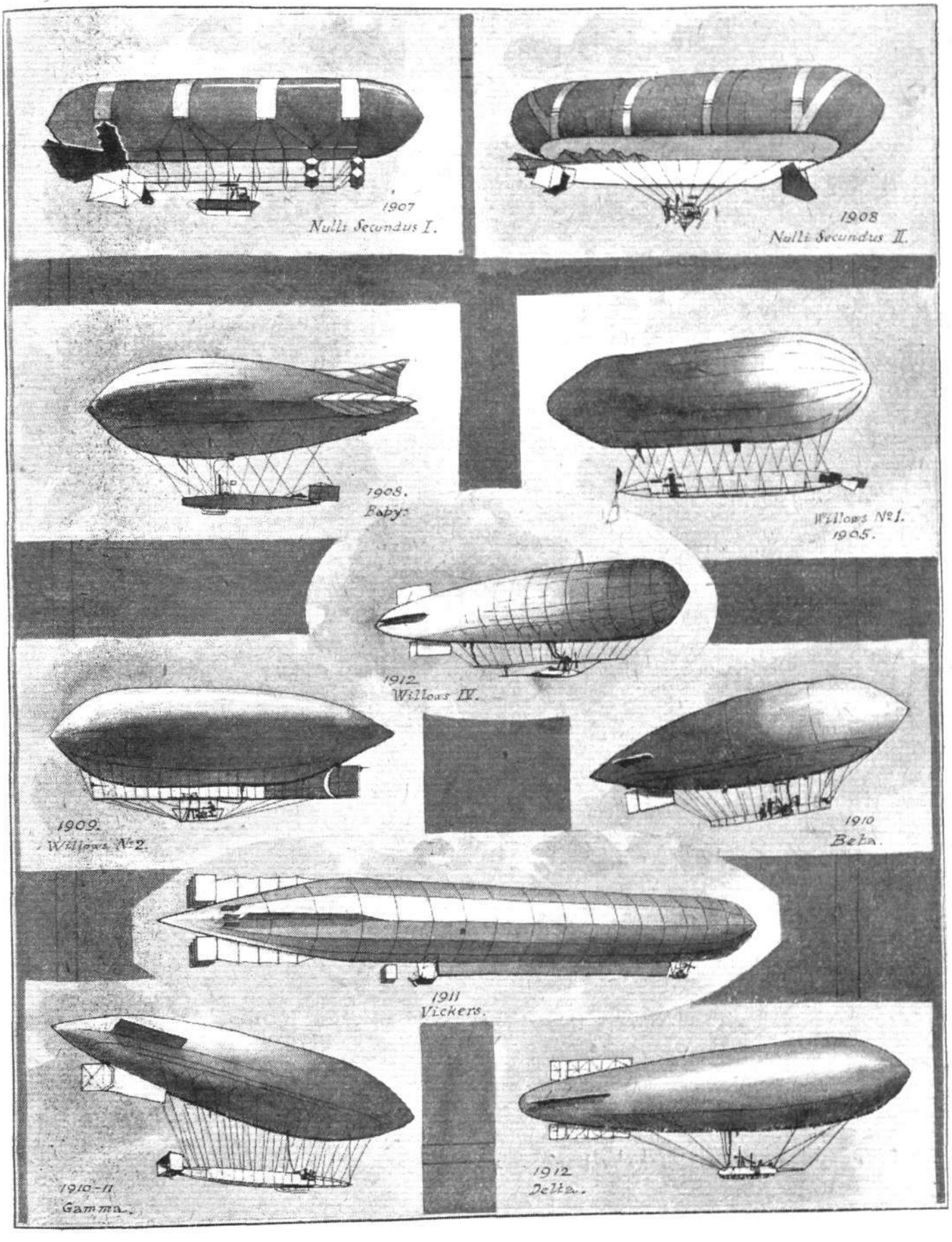
To our way of thinking it is the gravest injustice to the memory of the dead, and to those of their kin who are left, that the officer or man who dies in performing a deed of valour which, had he lived, would have entitled him to a decoration, should, by reason of his supreme sacrifice, be deprived of the honour. It is neither justice nor logic, and in spite of the " difficulties " upon which so much stress is laid, we trust to see another announcement made very soon, removing what is really a shocking anomaly.

The Government and the Press.

Not before it was due, a protest has been registered by Mr. H. W. Massingham against the policy of the Government towards the Press of the country. He points out that the editors of London and Provincial papers have recently been invited to attend a series of private conferences with Ministers, at which they have been addressed confidentially on subjects concerning the war. This method of private conferences, it is urged, represents, so far as the public is concerned, a cumulative effect of concealment and discouragement of liberty of thought and expression. The Coalition stops the normal flow of political criticism. The Defence of the Realm Act places it in the power of the Executive to arrest any strongly adverse judgment on the conduct of the war or the policy of the Government. The censorship exercises a constant pressure, partly suggestive, partly arbitrary, on free opinion and the free circulation of news. The private conference, under the honourable seal of secrecy, sets up a third barrier and the range of permitted subjects is thus further curtailed.

We agree that all this is so. Indeed, it is an exceedingly moderate statement of the case. The Press is muzzled and shackled to an extent which no-one outside the Press itself can possibly realise. Criticism, save of the most vague and general character, is stifled ; comment on almost any subject under the sun is reduced to a mere travesty. Admittedly, at a time like the present, it would be out of the question to allow the same license as in normal times, but there are limits. There would be very little ground of complaint if the embargo on news and comment were intelligently carried out, but that is exactly what it is not. Instead of being administered along definite and intelligible lines, the censorship is apparently a matter very largely of individual caprice. To put the matter plainly, we exist under Prussian regulations, administered with characteristic British official stupidity. The consequence is that our boasted freedom of the Press has become the sorriest travesty. There is no such thing as freedom of expression either in the Press, on the platform or anywhere else, except in the House of Commons, where anyone who catches the Speaker's eye may talk the veriest sedition if he so pleases.

Nor is it only in the suppression of news and comment that the newspaper Press suffers from the capriciousness of the censorship. We could give chapter and verse for more than one case in which serious damage has been done to business interests, and that without reason or explanation given. Indeed, it is of little or no avail to ask for reasons when once the hand of the censor has made itself felt. To such a pass has officialism come that it does not even deign to notice the most courteous request for information when once it has determined on a line of action. The only inference that can be drawn from official silence when a natural request to be informed of reasons for a particular course of action has been proffered is that there are no reasons that will bear stating. There is not the shadow of doubt that we have arrived at the state which the typical official regards as the ideal—that in which the official is the master and the public his slave to



AIRSHIP PIONEERS.—British examples. (*See page 977.*)

do what he will with. And we shall have a great deal of difficulty in persuading him out of that state of mind when the time comes for him to be set back in his place. What a ghastly prospect it all opens up!

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More Female Labour Wanted.

The Ministry of Munitions is asking for more volunteers from among the women of the country to undergo training for work in munition factories. In the official communication conveying the request, it is pointed out that, apart from the numbers needed for new factories and extensions of works already established, many are required to replace the men of military age who are being called to the colours. The demand is for between 800 and 1,000 per week to fill all the gaps!

We doubt not that the appeal of the Ministry will be of effect. The women of the country have risen to the occasion wonderfully and beyond the most sanguine expectations of the early days of the war. That they will respond equally to this and every new call made upon them we have the fullest confidence.

In a recent issue of "FLIGHT," in advocating a further dilution of labour all round, we took the opportunity of pointing out that there is very little to be apprehended from the supposed danger of women taking the place of skilled workers after the war. The communication from the Ministry of Munitions, which we have taken as our present text, once more reminds us of an interesting little sidelight on this aspect of the labour question. It draws attention to the fact, to which we gave publicity many months ago, that the period of training to be undergone by women munition workers who respond to the Ministry's invitation, is from four to six weeks. At the expiration of this time they are passed as being qualified to take their places in the factory.

This, as we have before urged, is a potent argument against the point of view that it is dangerous to the interests of skilled labour to allow "dilution." We put it that it is an absolute endorsement of our own argument that the feared danger is disposed of by the simple fact that the women munition makers and those who have been called upon to take the places of men in other trades and industries have been trained only in one direction. That is to make them as efficient as possible in the shortest time to carry out one particular operation, and one only. In other words, every workwoman is trained with the one idea of making her a specialist. She is of inestimable use for the work in hand now, but a commercially impossible proposition in the mass when it comes to the post-war reconstruction of industries.

We do not think that this aspect of the labour position can be too strongly argued. It is quite natural that the leaders of labour—in fact, it is of the same importance to the entire nation—should look ahead and that they should regard with a certain amount of suspicion anything which may conceivably lead to an upheaval of the whole industrial system.

Not but what all or any measures would have to be adopted in order to win the war, whatever the effect on systems. But if we can fit our measures for the present to the future of our industries, so much the better. The Army wants men—and it must have them. That is the one outstanding fact of the moment. There are thousands of fighting men working in our factories whose places can well be filled by women for the period of the war. We have got to have those men in the ranks of the Army, and we do not believe there is the least risk to the future interests of labour in making the exchange. It could not be helped if there were—we must have the men, and the only way to get them is by still further "dilution."

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The S.B.A.C.

It is not very long since the members of the British aircraft industry decided among themselves that the time had come for them to form a representative body of their own. The results of that decision are to be seen to-day in the Society of British Aircraft Constructors, which, young as it is, has already accomplished a great deal of very useful work and has arrived at a state of organisation which would lead the uninstructed outsider to think that it had been going for twenty years instead of a long way short of as many months.

The scope of the Society is fairly wide, and covers practically every phase of interest connected directly or indirectly with the industry. Apart from its general work, which includes matters so far apart as the instruction of the Legislature and public bodies generally in matters affecting the aerial movement and assisting its members in litigation, the Society already has in full working subsidiary committees which ought to prove of immeasurable benefit to the industry.

It has established an aero engine section, to which all matters relating to engines are referred. The names of the members of this section are a sufficient guarantee in themselves that the vitally important matter of engines will now and in the future receive the full meed of attention it demands. Then there is a Technical Section to which are referred all technical questions affecting aircraft construction as distinct from those matters which fall to be dealt with by the Engine Section, while it is in contemplation to inaugurate other sections as and when the need for them is demonstrated.

The Society is certainly to be congratulated on the splendid progress it has made since its inception, and on the immense amount of work it has done to co-ordinate the communal affairs of what is, after all, an infant industry. It is a great thing to begin when a movement is young rather than to wait until things have become established by custom and have got more or less into a groove from which it is difficult to lift them.

The wisdom of the industry in taking a line for themselves rather than allowing their affairs to remain the concern of a mere sub-committee of another body, has already been made manifest and will become plainer every day as the industry grows in importance, as it must do.

The British Air Services

"PER ARDUA AD ASTRA"

UNDER *this heading are published each week the official announcements of appointments and promotions affecting the Royal Naval Air Service and the Royal Flying Corps (Military Wing) and Central Flying School. These notices are not duplicated. By way of instance, when an appointment to the Royal Naval Air Service is announced by the Admiralty it is published forthwith, but subsequently, when it appears in the* LONDON GAZETTE, *it is not repeated in this column.*

Royal Naval Air Service.

Admiralty, October 31st.

Sqdn.-Comdr. I. T. Courtney, appointed Actg. Wing Comdr., Oct. 1st.

H. Howard and S. C. Perryman granted temp. commissions as Lieuts., with seniority Oct. 30th.

Admiralty, November 2nd.

The undermentioned have been entered as Prob. Flight Officers for temp. service, and appointed to the "President," additional, for R.N.A.S., all to date Nov. 5th: M. G. Woodhouse, A. H. Garland, R. W. Gant, N. A. W. Owen, R. B. R. Ashworth, G. A. Brown, and G. H. Willows.

Admiralty, November 3rd.

Petty Officer, Mech., R.N.A.S., C. W. Gilbert granted a temp. commission as Engr. Sub-Lieut., R.N.R., with seniority Oct. 6th.

Admiralty, November 4th.

Comdr. R. S. Roy to the "Daedalus," additional, for R.N.A.S., Nov. 3rd.

Temp. Sub-Lieut., R.N.V.R., R. K. Marwood and N. G. Snelling promoted Temp. Lieut., both seniority Nov. 1st.

Prob. Flight Sub-Lieut. (temp.) H. O. Merriman granted a temp. commission as Sub-Lieut., R.N.V.R., and appointed to the "President" for R.N.A.S., to date Nov. 3rd. Appointment as Prob. Flight Sub-Lieut. (temp.) terminated.

The undermentioned have been entered as Prob. Flight Officers, temp., and appointed to the "President" for R.N.A.S., to date as stated: F. C. Cressman, Oct. 16th; H. W. Lee, Francis Stanier, A. W. Evans, and J. A. E. Towles, Nov. 12th.

Admiralty, November 6th.

A. E. Penn and L. H. Pritchard granted temp. commissions as Lieuts., R.N.V.R., seniority Nov. 4th.

J. Kelly and J. Bishop granted temp. commissions as Sub-Lieuts., R.N.V.R., seniority Nov. 4th.

The under-mentioned entered as Proby. Flight Officers for temp. service, all date Nov. 12th: H. T. Pepper, J. P. Barnes, P. W. Pearkes, J. S. A. Fergusson, E. A. M. Waterton, P. G. Stokes-Rees, R. J. Stallard and A. C. Snow.

Royal Flying Corps (Military Wing).

London Gazette Supplement, November 1st.

Temporary Appointments at War Office.

Deputy Assistant Directors.—Capt. A. G. Clark, R.F.C., S.R., from a Staff Capt., vice Capt. E. R. L. Corballis, R. Dub. Fus.; 12th Aug. Temp. Capt. J. S. Nicholson, from a Staff Capt.; Aug. 26th.

Staff Captains.—Maj. I. B. Davson, City of Lond. Yeo. (T.F.), vice Capt. P. R. Grace, R.F.C., S.R.; Aug. 1st. Aug. 26th: Temp. Capt. R. H. Brand, from an Equipment Officer, R.F.C.; Temp. Capt. C. M. Smith, from an Equipment Officer, R.F.C.; Lieut. (Temp. Capt.) C. Hirtzel, R.F.C., S.R., from an Equipment Officer, R.F.C., and to retain his temp. rank whilst so employed, vice Temp. Capt. J. S. Nicholson.

Staff Lieutenants.—Aug. 26th: 2nd Lieut. (temp. Lieut.) H. F. Anns, Lond. R. (T.F.), from an Asst. Equipment Officer, R.F.C.; Lieut. (Temp. Capt.) G. Dugdale, Montgomeryshire Yeo. (T.F.); 2nd Lieut. S. Whitechurch, R.F.C., S.R., from an Asst. Equipment Officer, R.F.C.; Lieut. St. J. R. Pigott, I. Gds., and to be secd.; Temp. Lieut. G. Frecheville, Gen. List.

Squadron Commander.—Capt. A. K. H. O'Brien, 2nd D.G., S.R., from a Flight Comdr., and to be Temp. Maj. whilst so employed; Oct. 4th.

Flight Commanders.—From Flying Officers, and to be Temp. Capts. whilst so employed. Oct. 1st: 2nd Lieut. (Temp. Lieut.) A. F. K. White, Suff. R. (T.F.); 2nd Lieut. (Temp. Lieut.) G. H. Hall, Welsh Horse Yeo. (T.F.); Temp. Lieut. S. R. Stammers, Gen. List; Temp. Lieut. J. T. Milne, Gen. List; Temp. Lieut. J. R. Allan, Gen. List; 2nd Lieut. W. A. McCloughry, 9th Regt., Australian Light Horse; 2nd Lieut. (Temp. Lieut.) C. R. Clapperton, Clyde R.G.A. (T.F.); 18th Oct.

Flying Officers.—The notification in the *Gazette* of Sept. 25th regarding Lieut. G. A. Garveys-Gadd, R.F.A., S.R., resigning his appointment as a Flying Officer, is cancelled.

Equipment Officers, 1st Class.—Aug. 26th: Temp. Hon. Capt. T. B. Morley, and to be Temp. Capt. whilst so employed; Temp. Capt. D. Thomson, Gen. List; Lieut. D. B. Sanders, R.F.C., S.R., from an Asst. Equipment Officer, R.F.C., and to be Temp. Capt. whilst so employed; 2nd Lieut. S. Clark, R.F.C., S.R., from an Asst. Equipment Officer, R.F.C., and to be Temp. Capt. whilst so employed.

Equipment Officer, 2nd Class.—2nd Lieut. E. N. Layton, S.R., from an Equipment Officer, 3rd Class, and to be Temp. Lieut. whilst so employed; Oct. 10th.

Equipment Officers, 2nd Class.—2nd Lieut. A. C. Blackmore, S.R.; July 12th. Lieut. O. I. Preston, Notts. and Derby. R. (T.F.), from a Flying Officer (Observer).; July 17th. Temp. 2nd Lieut. J. M. Macaulay, Gen. List; Aug. 1st.

2nd Lieutenants, Special Reserve.—P. A. Barron; Aug. 10th. H. Lloyd; Sept. 25th. N. Martin; Oct. 23rd.

Memoranda.—Capt. J. Valentine, R.F.C., S.R., a Flight Comdr., R.F.C., to be Temp. Maj. (without the pay and allowances of that rank) whilst specially employed; Oct. 20th. Temp. 2nd Lieut. J. C. C. Affleck, York. R., is transfd. to Gen. List, and to be Temp. Lieut. whilst serving with R.F.C.; Oct. 1st. The undermentioned 2nd Lieuts. to be Temp. Lieuts. whilst serving with R.F.C. Oct. 1st: B. D. Bellamy, Essex R.; J. E. Catherall, R. War. R.; J. D. G. Macrae, Sea. Highrs. The undermentioned 2nd Lieuts., S.R., to be Temp. Lieuts. whilst serving with R.F.C. Oct. 1st: A. L. M. Shepherd, K.R. Rif. C.; G. Philippi, 1st Dns.; F. C. Dixon, Dorset. R. The undermentioned 2nd Lieuts. (on prob.), S.R., are confirmed in their rank, and to be Temp. Lieuts. whilst serving with R.F.C. Oct 1st: G. J. Read, N. Staff. R.; H. F. Champion, Rif. Brig.; R. J. Bevington, R.F.A.; R. E. Meek, Wilts. R. The undermentioned Temp. 2nd Lieuts. to be Temp. Lieuts. whilst serving with R.F.C. Oct. 1st: C. E. Foggin, W. G. D. Turner, E. H. Hall, F. Sharpe, Notts. and Derby. R., H. A. Pearson, R.A., R. J. G. Temple, R.G.A.

Supplementary to Regular Corps.—The undermentioned 2nd Lieuts. (on prob.) are confirmed in their rank: P. A. Barron, H. Lloyd, L. M. Barlow. N. Martin to be 2nd Lieut. Oct. 23rd. The undermentioned to be 2nd Lieuts. (on prob.): W. G. Peck; Oct. 14th. G. Dennison; Oct. 15th.

London Gazette Supplement, November 2nd.

Flight Comdrs.—From Flying Officers, and to be Temp. Capts. whilst so emplyd.: 2nd Lieut. (Temp. Lieut.) M. Henderson, D.S.O., Sea. Highrs. (T.F.); April 1st. 2nd Lieut. T. Davidson, Camn. Highrs. (T.F.); Oct. 16th. Capt. H. W. von Poellnitz, Linc. R., from a Flying Officer; Oct. 17th.

Flying Officers.—2nd Lieut. A. E. McKay, Spec. Res.; June 19th. Temp. 2nd Lieut. H. C. Peirce, R.W. Kent R. and to be transfd. to Gen. List; Sept. 28th. Lieut. S. Guillon, Canadian Gen. List; Oct. 13th. Oct. 14th: 2nd Lieut. (Temp. Lieut.) J. P. D. Maclagan, R. Scots, (T.F.), 2nd Lieut. L. M. Barlow, Spec. Res. 2nd Lieut. (Temp. Capt.) R. G. H. Pixley, Lond. Brig. R.F.A. (T.F.); Oct. 15th. 16th Oct.: Lieut. M. D. G. Scott, N. Lan. R., Spec. Res., from a Flying Officer (Observer), with seniority from May 21st. Temp. 2nd Lieut. C. C. Cheatle, York and Lanc. R., and to be transfd. to Gen. List.

Equipment Officer, 1st Class.—Qr.-Mr. and Hon. Lieut. W. Thomas, R.F.C. from an Equipment Officer, 3rd Cl., and to be Temp. Capt. whilst so employed; Sept. 1st.

Equipment Officer, 3rd Class.—2nd Lieut. (Temp. Lieut.) H. Maccoy, London R. (T.F.); Oct. 19th.

Adjutant.—2nd Lieut. D. G. Nairn, Highland Divn. Train, A.S.C. (T.F.) and to be Temp. Lieut. whilst so employed vice Lieut. (Temp. Capt.) R. H. Jerman, R.W. Fus.; Aug. 28th.

Memoranda.—2nd Lieut. E. E. Robb, R.F.C., Spec. Res., to be Temp. Capt. (without the pay and allowances of that rank) whilst serving with the Home Defence Wing; Nov. 3rd. Sergt. S. F. Cody, from R.F.C., to be Temp. 2nd Lieut. for duty with the Mil. Wing of that Corps; Oct. 10th. Acting Corpl. F. R. H. Logan, from R.F.C., to be Temp. 2nd Lieut. (on prob.) for duty with the Mil. Wing of that Corps; Oct. 11th.

Supplementary to Regular Corps.—The notification in the *Gazette* of Aug. 17th regarding the appt. of 2nd Lieut. A. E. Blackmore is cancelled. The undermentioned 2nd Lieuts. (on prob.) are confirmed in their rank: C. M. W. Park, J. E. R. Avery. A. E. Blackmore to be 2nd Lieut. (on prob.); Aug. 29th.

London Gazette, November 3rd.

Flight Comdr.—Lieut. C. A. Ridley, M.C., R. Fus., from a Flying Officer and to be Temp. Capt. whilst so employed; Oct. 20th.

Flying Officers.—2nd Lieut. (temp. Lieut.) E. R. Farmer, Notts. Yeo. (T.F.); July 20th. Temp. 2nd Lieut. S. F. Cody, Gen. List.; Oct. 10th. 16th Oct: Temp. 2nd Lieut. C. C. Marsden, Gen. List; 2nd Lieut. (on prob.) H. B. Begg, Spec. Res.; Oct. 17th. Temp. 2nd Lieut. (Temp. Lieut.) J. H. Thomas, Manch. R. Temp. 2nd Lieut. (on prob.) W. D. Patrick, Gen. List. Temp. 2nd Lieut. D. M. Macdonald, Gen. List; Oct. 18th. 2nd Lieut. P. B. Boyd, Gord. Highrs., and to be secd.; Oct. 19th.

Flying Officers (Observers).—Oct. 14th.: 2nd Lieut. P. S. Jackson-Taylor, Hereford R. (T.F.); 2nd Lieut. G. C. T. Hadrill A.S.C., and to be secd.; Oct. 16th. Temp. 2nd Lieut. J. A. Gerges, York and Lanc. R., and to be transfd. to Gen. List: Temp. 2nd Lieut. T. K. Twist, Durh. L.I., and to be transfd. to Gen. List: 2nd Lieut. A. Douglas, R.F.A., Spec. Res.; Temp. 2nd Lieut. H. Jackson, R.A., and to be transfd. to Gen. List; Oct. 20th. Capt. H. G. ffiske, R.F.A. (T.F.); Temp. 2nd Lieut. O. D. Norwood, A.S.C., and to be transfd. to Gen. List.

Equipment Officers, 3rd Class.—Aug. 1st: Temp. Lieut. H. Fernihough, Welsh R., and to be transfd. to Gen. List. 2nd Lieut. W. D. South, R. War. R. (T.F.) Temp. 2nd Lieut. M. L. Horn, Gen. List.; 2nd Lieut. J. E. R. Avery, Spec. Res.; Temp. 2nd Lieut. W. T. H. Hocking, Gen. List; 2nd Lieut. C. M. W. Park, Spec. Res. Temp. 2nd Lieut. C. E. Morgan, Gen. List; Oct. 4th. Oct. 18th.: 2nd Lieut. (Temp. Lieut.) C. A. H. Mason, E. Surr. R. (T.F.); 2nd Lieut. (on prob.) J. Paradise, Spec. Res.

London Gazette Supplement, November 4th.

Sqdn. Comdr.—Lieut. (Temp. Capt.) F. W. Goodden, Spec. Res., from a Flight Comdr., and to be Temp. Maj. whilst so employed; Oct. 23rd.

Flight Comdr.—The appointment of Temp. Capt. D. K. Johnstone, Gen. List, notified in the *Gazette* of Aug. 19th, is antedated to Apr. 1st.

Flying Officers.—Temp. 2nd Lieut. D. S. Allan, Gen. List; Oct. 8th. Oct. 17th: 2nd Lieut. (Temp. Lieut.) H. E. Read, Linc. Yeo. (T.F.); Temp. 2nd Lieut. H. E. Arnold, Gen. List; 2nd Lieut. M. R. Helliwell, Spec. Res. Lieut. F. C. Barrell, L'pool. R. (T.F.); Oct. 18th.

Sir D. Haig on Recent R.F.C. Work.

IN his review of events from October 19th to the end of the month, issued for General Headquarters on October 31st, Sir Douglas Haig says: "Towards the end of the month, the enemy artillery became more active, and enemy aeroplanes were more in evidence. This increased activity has been satisfactorily dealt with by our own guns and aircraft."

R.N.A.S. Officers and Tuition Fees.

AN Order in Council, published in the *London Gazette* of November 7th, provides that commissioned and warrant officers who qualify for the Royal Aero Club's pilot's certificate at their own expense before entering the Royal Naval Air Service, shall have their tuition fees refunded up to a limit of £75, thus granting to R.N.A.S. officers a concession which has been given to R.F.C. officers for several years.

It is stipulated that payment shall not be made until confirmation in rank, or two months' service in the case of officers confirmed on entry, and that officers who resign or are discharged for causes within their own control within three years of entry may be required to repay the whole or a part of the sum received.

P.O. Air-Raid Insurance Certificates.

AN official notice reminds holders of aircraft insurance certificates taken out a year or more ago, that they now cease to be in force; new certificates must be taken out if it is desired to continue the insurance. The Government will not be liable for any loss or damage sustained between the time of expiry of one certificate and the issue of another in respect of the same property.

Full particulars regarding the certificates can be obtained at any post office.

At the same time, it may be timely to remind holders of Government air-raid insurance policies to make a note of the expiry of the insurance, as no renewal notices are sent out, as in the case of ordinary insurances.

The Lord Mayor's "L.15" Medals.

ONE of the last but most pleasurable duties of the Lord Mayor, Colonel Sir Charles Cheers Wakefield, before going out of office was to hand over to General Headquarters, Home Forces, at the Horse Guards, 353 gold medals for distribution to that number of officers and men who were instrumental in bringing down "L. 15" on the night of March 31st—April 1st, 1916, on the Thames Estuary. This distribution is the outcome of the offer made last year by Sir Charles of £500 to the first person or persons who might bring down a Zeppelin on British soil.

The Society of British Aircraft Constructors.

FULL details regarding the formation and constitution of the Society of British Aircraft Constructors were given in our issue of April 20th last, and since then we have noted the various additions to the membership. A fully representative body, the S.B.A.C. should have the support of every firm in the industry, so that its work in assisting—both commercially and scientifically—its members may be prosecuted to the full.

There is a General Council of the Society consisting of such number of members (or representatives of members) as shall be determined from time to time, and the general management of the Society's business is in the hands of a Committee consisting of fourteen members of the Council. The present Committee of Management consists of Messrs. H. White Smith (*Chairman of the Society*) (The British & Colonial Aeroplane Co., Ltd.), B. Caillard (Wolseley Motors, Ltd.), R. O. Cary (The Sopwith Aviation Co., Ltd.), L. Coatalen (The Sunbeam Motor Car Co., Ltd.), Hamilton Fulton (Martinsyde, Ltd.), N. G. Gwynne (Gwynnes, Ltd.), E. B. Parker (Short Brothers), E. W. Petter (Westland Aircraft Works), H. V. Roe (A. V. Roe & Co., Ltd.), J. D. Siddeley (The Siddeley-Deasy Motor Car Co., Ltd.), G. Holt Thomas (The Aircraft Manufacturing Co., Ltd.), H. T. Vane (D. Napier & Son, Ltd.), Major H. F. Wood (Vickers, Ltd.), Howard T. Wright (J. Samuel White & Co., Ltd.).

An Aircraft Engine Section of the Society has been formed, and all aircraft engine matters are referred to this Section, the present Committee of which is as follows:—G. Holt Thomas (*Chairman of the Section*) (Gnome & Le Rhone Engine Co.), W. H. Allen (W. H. Allen Son & Co., Ltd.), A. F. Bennett (Messrs. Willans & Robinson, Ltd.), B. Caillard (Wolseley Motors, Ltd.), L. Coatalen (The Sunbeam Motor Car Co., Ltd.), A. H. R. Fedden (Brazil, Straker & Co., Ltd.), N. G. Gwynne (Gwynnes, Ltd.), L. J. Le Mesurier (Sir W. G. Armstrong, Whitworth & Co., Ltd.), F. May (Green Engine Co., Ltd.), J. D. Siddeley (The Siddeley-Deasy Motor Car Co., Ltd.), H. T. Vane (D. Napier & Son, Ltd). A Technical Section of the Society has also been formed, for which technical representatives are nominated by members. It is desired that the constitution and scope of this section shall be as unrestricted as possible, the object being to obtain the assistance of all members—both ordinary and associate—on technical matters, and particularly in respect of matters of which they have special knowledge. Other sections of the Society will be formed as and when they are required.

The Secretary of the Society is Mr. C. V. Allen, and the offices are at St. Stephen's House, Victoria Embankment, Westminster, S.W.

FLIGHT

AIRSHIP PIONEERS

(*Continued from p. 958.*)

FROM 1902 onwards, commencing with the first semi-rigid airship, "Le Jaune," constructed by the Lebaudy Bros., the development of the airship became much more rapid, especially in France. It would be impossible, with the space at our disposal, to give a complete record of every airship built, nor would it be necessary, as many of them were exactly similar. It is therefore proposed to deal with the original of each type, and then only refer to those of its

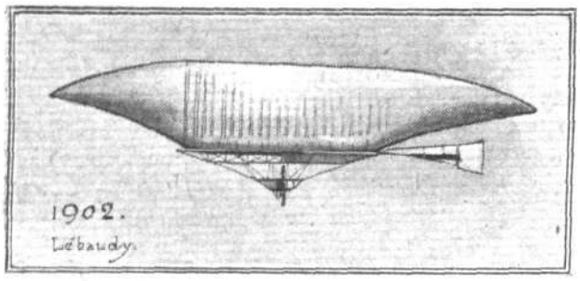
TABLE OF AIRSHIPS BUILT AND TRIED OUT.

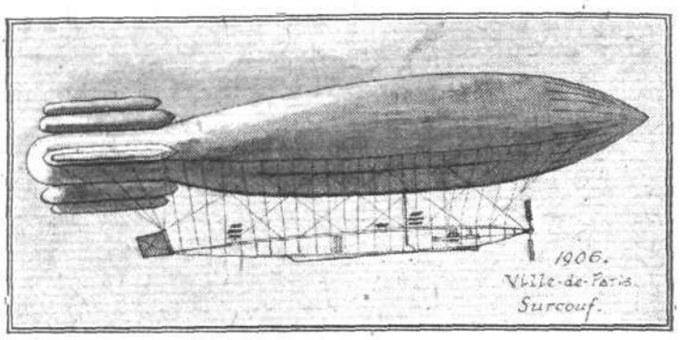
Year.	Name.	Country.	Type.	Propulsion.	Length.	Diameter.	Volume.
					ft.	ft.	cu. ft.
1784	Chartres (Bros. Robert)	F.	N.R.	Manual	52	32	30,000
1784	Meusnier	F.	N.R.	,, ...	—	—	—
1789	Scott	F.	N.R.	Ballonets	—	—	—
1834	Lennox	F.	N.R.	Manual	130	35	99,000
1848	Partridge	E.	R.	—	—	—	—
1851	Meller	—	R.	—	—	—	—
1852	Giffard No. 1	F.	N.R.	3 h.p. steam	144	40	88,300
1855	,, ,, 2	F.	N.R.	3 ,, ,, ...	230	33	113,000
1870	Dupuy de Lôme	F.	N.R.	Manual	118	49	122,000
1872	Haenlein	G.	S.R.	3 h.p. gas	165	30	85,000
1883	Tissandier...	F.	S.R.	1½ h.p. elec.	92	30	37,500
1884	Renard and Krebs	F.	N.R.	9 ,, ,, ...	165	27	66,000
1880 } 1897 }	Wölfert	G.	N.R.	8 ,, ,, *	92	28	28,300
1895	Schwarz	G.	R.	12 h.p. Daimler*	156	39	130,600
1898	Santos Dumont No. 1	B.	N.R.	3 h.p. De Dion	82	11½	6,350
1899	,, ,, 2	B.	N.R.	3 ,, ,, ...	82	12½	7,060
1899	,, ,, 3	B.	N.R.	3 ,, ,, ...	66	24½	17,650
1900	,, ,, 4	B.	N.R.	7 h.p. Buchet	129	17	15,000
1900	,, ,, 5	B.	N.R.	12 ,, ,, ...	109	17	19,000
1901	,, ,, 6	B.	N.R.	12 ,, ,, ...	108	19¾	22,650
1901	,, ,, 7	B.	N.R.	60 ,, ,, ...	164	26	44,500
1901	,, ,, 9	B.	N.R.	3 h.p. Clement-Bayard... ...	50	18	7,720
1901	,, ,, 10	B.	N.R.	20 ,, ,, ...	157	28	71,000
1901	Roze	F.	—	—	—	—	—
1901	Bradsky	G.	S.R.	16 h.p. Buchet	111	20	30,000
1902	Severo	S.	S.R.	12 and 24 h.p. Buchet	98	40	84,750
1903	Barton	E.	N.R.	(3) 50 h.p. Buchet	176	43	235,000
1902	Lebaudy No. 1 (Julliot)	F.	S.R.	35 h.p. D.-Mercedes	187	32	80,670
1903	Ville-de-Paris (Tatin)	F.	N.R.	—	—	—	—
1906	,, (Surcouf)	F.	N.R.	70 h.p. Argus	203	34	113,000
1905	Willows No. 1	E.	N.R.	7 h.p. Peugeot	74	18	12,500
1906	Vaulx (Zodiac II)	F.	N.R.	45 h.p. Ader	106	21	25,000
1906	Parseval No. 1	G.	N.R.	85 h.p. Daimler	157	28	117,000
1906	Wellman (America I)	A.-F.	S.R.	80 ,, ,, ...	184	52	300,000
1907	Gross No. 1	G.	S.R.	25 h.p. Mercedes...	131	39	63,600
	,, M. 1 (rebuilt 1912) ...	G.	S.R.	(2) 75 h.p. Mercedes	243	36	194,200
1907	Nulli Secundus No. 1	E.	S.R.	50 h.p. Antoinette	111	30	85,000
1908	,, ,, 2	E.	S.R.	50 ,, ,, ...	120	26	56,000
1908	Zodiac I (*Le Petit Journal*) ...	F.	N.R.	16 h.p. Clerget	98	23	24,700
1908	Malécot	F.	S.R.	28 ,, ,, ...	108	24	37,300
1908	Torres-Quevedo	S.	N.R.	(2) 24 h.p. Antoinette	118	33	35,000
1908	Clement-Bayard I	F.	N.R.	120 h.p. Clement-Bayard ...	183	35	123,620
1908	Italian (Ricaldoni) I	I.	S.R.	100 ,, ,, ...	206	33	88,300
1909	,, ,, 1 *bis*	I.	S.R.	120 ,, ,, ...	216	36	122,000
1909	,, Forlanini I	I.	S.R.	40 h.p. Antoinette	131	64	122,000
1909	Willows No. 2	E.	S.R.	30 h.p. J.A.P.	86	22	21,000
1909	"Belgique" (Godard)	F.	N.R.	(2) 55 h.p. J.A.P.	180	32	29,000
1910	Wellman (America 2)	A.	S.R.	(2) 80 ,, ,, ...	228	52	325,000
1910	Willows No. 3	E.	S.R.	30 h.p. J.A.P.	120	23	32,000
1909	British Army, "Baby"	E.	N.R.	(2) 8 h.p. Buchet...	84	35	21,000
1910	,, "Beta"	E.	N.R.	30 h.p. Green	104	25	21,000
1910	,, "Gamma" ...	E.	N.R.	(2) 50 h.p. Green...	152	30	70,300
1912	,, "Delta"	E.	N.R.	(2) 50 ,, ,, ...	152	30	70,300
1913	,, "Eta"	E.	N.R.	(2) 50 ,, ,, ...	152	30	70,300
1910	Siemens-Schuckert I	G.	S.R.	(4) 125 h.p. Mercedes	387	43	460,000
1910	Schütte-Lanze I	G.	R.	(2) 270 ,, ,, ...	430	60	690,000
1911	,, 2	G.	R.	(4) 180 h.p. Maybach	470	60	780,000
1911	Suchard	G.	N.R.	(2) 110 h.p. N.A.G.	249	52½	423,840
1911	Vickers (Naval)	E.	R.	(2) 200 h.p. Wolseley	510	48	706,330
1911	Yamada	J.	N.R.	50 h.p. Korting	115	24	49,500
1911	Astra-Torres I	F.	N.R.	55 h.p. Chenu	157	33	68,150
1912	Willows No. 4 (Naval)	E.	S.R.	35 h.p. Anzani	100	20	24,000
1912	Spiers (rebuilt 1913)	F.	R.	(2) 200 h.p. Chenu	460	43	578,000
1912	Veeh	G.	S.R.	(2) 130 h.p. Mercedes	230	41	32,150
1912	Italian M. 1	I.	S.R.	(2) 250 h.p. F.I.A.T.	272	56	424,000

A. = American. B. = Brazilian. E. = English. F. = French. G. = German. I. = Italian. J. = Japanese. S. = Spanish.
N.R. = Non-rigid. R. = Rigid. S.R. = Semi-rigid. * Benzine engine.

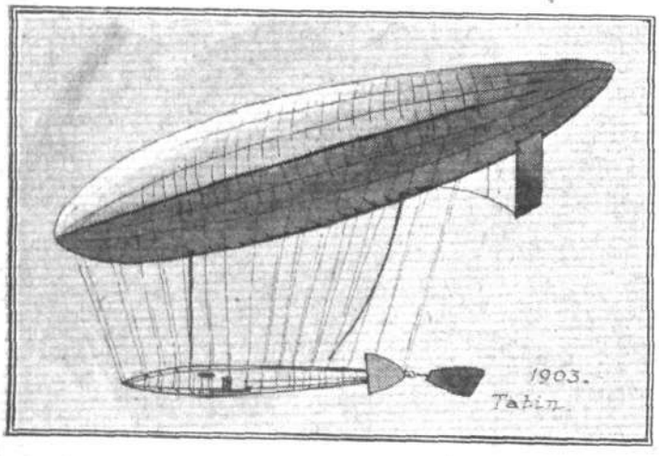
successors which possessed outstanding differences in design or construction.

The brothers Paul and Pierre Lebaudy, wealthy sugar refiners, inspired by the success of Santos Dumont, commissioned a skilful engineer, M. Julliot, to construct a dirigible on more practical lines. With the help of M. Surcouf, a ship was completed by October, 1902, and made a successful trial





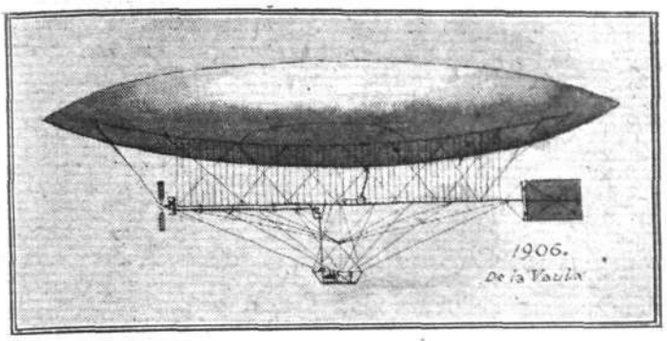
flight. It possessed several novel features, the most important of which was the attachment of the cigar-shaped envelope (187 ft. × 32 ft., capacity 80,670 cub. ft.) to a platform or keel, consisting of a framework of steel tubes, to the rear extensions of which horizontal and vertical planes were attached. Suspended from the keel, by means of 24 steel rods, was the car containing a 35–40 h.p. Mercedes engine driving a 9 ft. propeller mounted in rigid framework on each side of the car, the thrust from the propellers being transmitted from the car to the keel by a rigid framework of steel tubes. For more than a year "Le Jaune" made numerous successful flights, until in November, 1903, after a flight from Paris to Chalais–Meudon, in a wind of about 18 m.p.h., it was dashed against a tree on landing and destroyed. It was re-built in 1904 and considerably improved, the envelope being increased to some 92,000 cub. ft., and given a rounded, instead of a pointed, stern. Stabilising fins were also added to the stern of the envelope, as well as elevating planes at the sides and midships. Known as the "Lebaudy," it made many ascents and long trips, under the eye of the French War Minister, until it met with a similar fate to "Le Jaune" in July, 1905. By now much valuable data had been obtained, and with the appearance, and presentation to the French Government, of the third Lebaudy airship, "Lebaudy"



rebuilt, in the close of 1905, there started a regular output of similar vessels from the factory which eventually arose at Moisson.

M. Deutsch de la Meurthe, a keen follower of the dirigible, had a small airship built to the designs of M. Tatin in 1903. It had a slim, cigar-shaped envelope, below which was suspended a long rectangular-section *nacelle*, with a propeller mounted at the rear. The trials were by no means successful, and so another ship, the "Ville-de-Paris," was constructed to the designs of M. Surcouf, in 1906. The "Ville-de-Paris" was the largest airship, next to the Zeppelins, that had been built up to that time, and, like the Lebaudys, was the forerunner of many subsequent ships of a similar type, known as the "Astra" class. It measured 203 ft. long by 34 ft. diameter, and had a capacity of 113,000 cub. ft. The envelope was cigar-shaped, with a peculiarly shaped stern, which consisted of a small cylindrical projection having eight smaller cylindrical balloons arranged around it in groups of two, as clearly shown in the illustration. These cylinders took the place of the stabilising planes, built up of a fabric-covered framework, hitherto employed on dirigibles. An air ballonet—by this time recognised as being a most necessary part of the dirigible—and five valves (four were automatic) were employed. A long, rectangular-section *nacelle* was suspended by lines from two rows of strong canvas bands sewn along the envelope from nose to stern, just below the equator line. The engine, a 70 h.p. "Argus," mounted in the fore part of the *nacelle*, drove a tractor screw 20 ft. in diameter. The pilot and control gear were located almost amidships, and above the stern of the *nacelle* were a rudder and elevating planes. A series of mishaps dogged the preliminary trials, but eventually, after minor improvements had been carried out, many successful ascents were accomplished. In 1908, after the first of the Lebaudy airships, "La Patrie," bought by the French Government, was blown away, the "Ville-de-Paris" was presented to the Government to replace her until a new vessel could be built.

In the meantime, in England, during 1904–5, E. T. Willows had constructed a small dirigible. It had a cylindrical envelope, of Japanese silk, with rather blunt conical ends, and measured 74 ft. × 18 ft. × 12,000 cub. ft. Suspended below the envelope, by means of diagonally crossed lines, was a long triangular-section *nacelle* built up of light steel tubing. Mounted at the rear was a 10 ft. propeller, whilst in front was a pair of swivelling tractor screws, employed for steering the ship in a horizontal as well as a vertical plane; no rudders or elevators were used. The propeller and steering screws were driven by a 7 h.p. Peugeot engine located, with the pilot, somewhat far back in the *nacelle*. As the succeeding ships constructed by E. T. Willows are of special interest, it may be as well to review these *en masse* before dealing with the other types of 1906. On the data obtained from the experiments with No. 1, a second ship was completed in 1909. This was practically of the semi-rigid type, for the envelope—which was much larger, measuring 86 ft. × 22 ft. × 21,000 cub. ft.—was attached to a keel of bamboo and steel, from which was suspended, by steel cables, a small *nacelle*. At the rear of the keel was mounted a rudder for horizontal steering, but steering in the vertical plane was effected by means of two propellers, mounted one on each side of the *nacelle*, which were made to swivel so as to give an upward or downward thrust. The engine employed was a 30 h.p. J.A.P. After many successful trips, including one from Cardiff to London, in 1910, this little ship was re-built, and (enlarged and improved) flew from London to Paris with a passenger (F. W. Goodden, now Major, R.F.C.). In 1912 No. 4 was built, and had the honour of forming a part of the British naval air fleet. Although of the same general lay out, No. 4 differed from the previous model in that the envelope tapered appreciably rearwards from a maximum diameter of some 20 ft. near the nose, and that the 35 h.p. Anzani engine, driving two swivelling 4-bladed propellers, was mounted on the keel above a "torpedo" boat suspended from the latter. The boat, carrying pilot and passenger, enabled the ship to alight on water. Originally a vertical fin and rudder were mounted at the rear of the keel, but later these were replaced by surfaces on the stern of the envelope itself. In 1913, No. 5, a similar ship, was con-

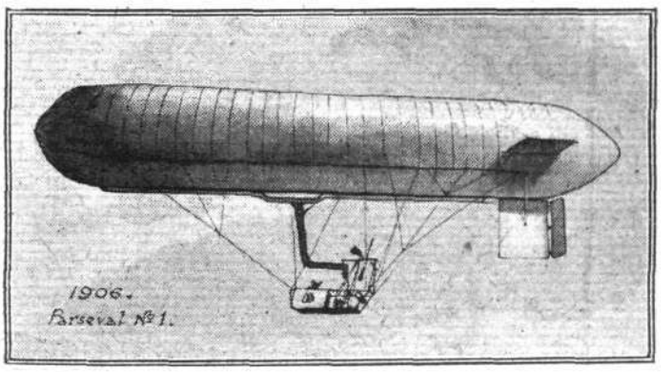


structed at Hendon aerodrome, where it made several short trips.

Returning to the year 1906, Comte de la Vaulx, in conjunction with M. Maurice Mallet, carried out some trials with a medium-sized airship. It had an elongated ellipsoidal shaped envelope attached to a long tubular keel, from the centre of which was suspended a small car containing the engine. Mounted at the forward end of the keel was a tractor screw, which was driven from the engine by telescopic shafting and bevel-gearing. The air-ballonet pump was mounted on the keel in the centre and was driven off the bevel gear at the top of the vertical shaft from the engine. The rudder was mounted at the rear end of the keel.

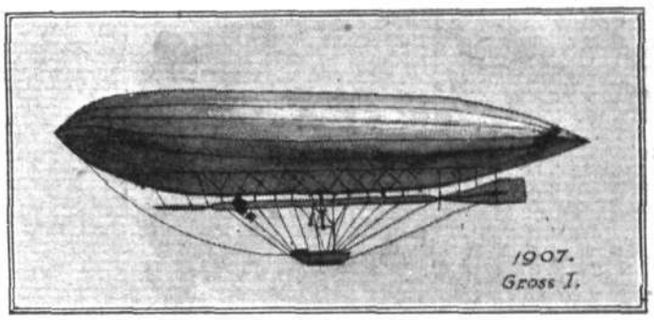
The same year a retired German officer, Major von Parseval, built an experimental airship possessing one or two very interesting features. The envelope, which was cylindrical in shape, with a rounded nose and conical stern, contained two ballonets, one forward and one aft. These ballonets were employed for altering the longitudinal trim of the ship, by pumping air into one and deflating the other. Another feature was the suspension of the car containing the power plant and crew. The suspension lines passed over a system of pulleys which enabled the car to swing a small amount fore and aft, and thus alter its position in relation to the envelope according to the variations of propeller thrust. The trials of No. 1 were apparently satisfactory, for subsequent Parsevals were of practically the same design, differing only in dimensions and minor details—such as a finer shape of envelope, and the employment of two propellers instead of one, &c.

Another German officer, Major Gross, also experimented with a small dirigible in 1907. This was of the semi-rigid type, the cigar shaped envelope being attached to a long T-shaped keel or framework of steel and aluminium tubing. Mounted on each side of the keel, in the centre of the ship, was a propeller, the drive from the engine, a 25 h.p. Mercedes, located in the car suspended from the keel, being obtained by



means of belts. The Parseval system of ballonets, and horizontal planes, were employed for the longitudinal control, and a rear extension of the keel terminated in a cruciform stabilising tail to which was hinged a rudder. The results obtained from this experimental ship, though poor, resulted in a larger and improved model being built the following year and put into military serivce as M1. This ship created a record by making an out-and-home trip of 176 miles in 13 hours; it was re-built in 1909 and again in 1912, being enlarged on each occasion. Numerous other models were turned out from time to time, but the only radical alterations in design made were in mounting the propellers directly on the car, and in the case of M4, the employment of two separate cars.

America's share in the development of the dirigible in 1906 was the construction of an airship with which it was hoped to reach the North Pole. This ship, the "America," which was built in France by M. Godard for Mr. Walter Wellman, was practically a combination of the Santos Dumont No. 9 and the "Lebaudy." The stumpy envelope was attached to a rigid keel, from which was suspended a long *nacelle*, of steel tubing, containing an enclosed central section forming the engine room and sleeping cabin. Two engines of 50 h.p. and 25 h.p. respectively were employed to drive a tractor and a propeller mounted at the ends of the *nacelle*. A small 5 h.p. motor operated the air-pump for the ballonet, and a specially designed guide rope, or equilibrator, was employed for maintaining vertical equilibrium. The start for the Pole was made on September 2nd, 1907, but after a two hours' tussle with a strong wind a descent was made upon a glacier, and certain damage resulting, the expedition was abandoned. Later the "America" was rebuilt for a Trans-Atlantic flight, which also ended in failure. "America II" differed in the arrangement of the keel, or car, and minor details. The keel was built up of steel tubes, and extended nearly the full length of the envelope. The lower central portion, carrying the engines, stores, crew, &c., was a long cylindrical tank containing the petrol. There were two engines of 80 h.p.,



mounted at right angles to the axis of the ship. Both engines drove a port and starboard propeller through bevel gearing. that of the rear pair being of the swivelling type for the purpose of vertical steering. Except for a small opening in the centre, the keel was covered with fabric, and thus provided the crew with more or less protected accommodation. A small donkey engine of 10 h.p. supplied air to the ballonets, of which there were eight. A novel form of equilibrator was employed; this consisted of thirty cylindrical tanks strung together on a steel cable, the entire length being 330 ft. These tanks each contained petrol, and could, when required, be drawn into the car. As the ship lightened with the consumption of fuel, a proportional quantity of gas had to be expelled from the envelope, but instead of allowing it to escape into the air, it was used as fuel for the forward engine, which had been adapted for this purpose. With a view to emergencies, a 27 ft. life-boat, well stocked with provisions, was slung underneath the keel. Horizontal steering was effected by a tri-plane rudder at the rear of the keel. The start for the Trans-Atlantic flight was made on October 15th, 1910, and after three days of misfortune following misfortune, the crew of the "America" were picked up in the Atlantic after abandoning the airship and taking to the life-boat.

The year 1907 saw the appearance of the first British Government airship, "Nulli Secundus," and for the sake of convenience, it is proposed to deal with the succeeding ones, at once. "Nulli Secundus" had a cylindrical envelope of goldbeater's skin, with spherical ends. Suspended beneath the envelope, by means of a net and four silk bands, was a triangular steel framework, or keel, from which was suspended a steel *nacelle*. A 50 h.p. Antoinette engine, mounted in the bows of the latter, drove two propellers, one on each side, by belting. At the rear of the keel were mounted a rudder and horizontal planes for steering, whilst two pairs of movable horizontal planes were also fitted in front. As the use of goldbeater's skin enabled a higher pressure of gas to be maintained, no ballonets were employed, but, of course, relief valves were provided. "Nulli Secundus" made numerous flights at Farnborough, but after a flight to London, was weather-bound, before the return journey could be made,

at the Crystal Palace, where it was rather roughly handled by a gale, and had to be dismantled and sent back to Farnborough. In 1908, however, "Nulli Secundus II" made its appearance, with several modifications in design. The envelope had been increased in length, and the keel and envelope were united by a covering of silk fabric. The steering planes and cars had also been simplified. In spite of the "improvements," however, "Nulli Secundus II" was hardly a success, though no doubt much useful data was obtained, and shortly after it was broken up. It was not until the following year that the next Army dirigible came forth, in the shape of a small, and rather pretty, vessel, with a somewhat stumpy, fish-shaped envelope, measuring 84 ft. × 35 ft., capacity 21,000 cubic ft. It had two horizontal and one vertical inflated fins at the stem, somewhat after the manner of the "Ville-de-Paris." Suspended below the envelope was a medium-sized *nacelle*, containing two 8 h.p. Buchet engines, driving a propeller mounted above. A rudder and elevator were mounted at the stern of the *nacelle*. In 1910 a larger ship, No. 2A, was turned out, having a cigar-shaped envelope with two inflated horizontal stabilising fins on the tail, and with a long *nacelle* suspended below. The latter contained an 80 h.p. Green engine driving through swivelling transmission of the Willows type two side propellers. Then followed another small airship, made up mostly from "Baby," called the "Beta." It had a similar form of propulsion as the previous ship, and enjoyed a comparatively long life, accomplishing many successful flights, and undergoing not a few modifications. Shortly after the completion of "Beta," the "Gamma" made its appearance. This ship was similar to No. 2A, but larger—it was, in fact, the largest built at the factory. In 1910 two airships were obtained from France, the "Clement-Bayard II" and "LebaudyVIII" ("Morning Post"), both of which eventually came to grief after journeys from France to England. In 1912 another ship, the "Delta," similar in size to No. 2A, but differing in that it had a boat-shaped car instead of the long *nacelle*, was produced. The "Delta" was followed in 1913 by a sister ship, the "Eta." At about this time the fleet of airships—what there was of it—was taken over by the Admiralty. In addition to these ships, the Naval fleet included a Parseval (No. 18), an Astra-Torres (No. 14), and the Willows No. 4. A rigid airship was completed in 1911 at the works of Messrs. Vickers Sons and Maxim, but never made a flight, for on being taken out of its shed at Barrow it was broken in half by being blown against the sides of the hangar. It was never rebuilt. The "Mayfly," as it came to be known, measured 510 ft. long by 48 ft. diameter, and had a capacity of 706,330 cubic ft. In appearance it was strikingly similar to the modern Zeppelin, except that it had two gondolas connected by a covered, internal "cat-walk," with a cabin in the centre as in the "Hansa" type. Each gondola had a 200 h.p. Wolseley engine, the forward one driving two side screws, and the rear one a single propeller at the stern of the gondola. Horizontal and vertical fins and multi-plane elevators and rudders were mounted on the tail, as well as small elevators in front.

(*To be concluded.*)

THE ROLL OF HONOUR.

REPORTED by the Admiralty:—

Previously reported Missing, now reported Not Missing.

Flight Sub-Lieut. A. J. Chadwick, R.N.

Reported by the War Office:—

Killed.

2nd Lieut. L. C. Fawkner, R.F.C.
Lieut. S. Haywood, E. Lancs., attd. R.F.C.
Lieut. J. C. Jervis, R.F.C.
Capt. L. H. King-Harman, R.H.A., attd. R.F.C.
2nd Lieut. W. A. M. Niven, R.F.C.

Previously reported Wounded, now reported Died of Wounds.

2nd Lieut. J. A. Simpson, R.F.C.

Previously reported Missing, now reported Died of Wounds.

2nd Lieut. C. C. Hann, R.F.C.
2nd Lieut. F. G. W. Marchant, R.W. Kent and R.F.C.

Died of Wounds.

16186 2nd Air Mech. H. H. R. Rolfe, R.F.C.

Wounded.

2nd Lieut. V. Bayley, King's (Liverpool) attd. R.F.C.
2nd Lieut. W. C. Crawford, Mach. Gun Corps and R.F.C.
2nd Lieut. J. S. Smith, N. Staffs. and R.F.C.

Missing.

2nd Lieut. G. R. Bolitho, Devonshire, attd. R.F.C.
2nd Lieut. W. M. Carlyle, R.F.C.
2nd Lieut. J. Collen, R. Inniskilling F., attd. R.F.C.
2nd Lieut. A. J. Fisher, R.F.C.
2nd Lieut. W. Fraser, R.F.C.
2nd Lieut. P. F. Heppell, R.F.A. and R.F.C.
2nd Lieut. H. B. O. Mitchell, M.C., R. Inniskilling F., attd. R.F.C.
2nd Lieut. G. A. Palfreyman, Buffs (E. Kent), attd. R.F.C.
2nd Lieut. F. G. Parsons, R.F.C.
2nd Lieut. M. Sharpe, R.F.C.
2nd Lieut. S. N. Williams, R.F.C.

Previously reported Missing, now reported Wounded and Prisoners of War in German hands.

2nd Lieut. J. D. A. Macfie, Black Watch, attd. R.F.C.
Capt. H. G. Salmond, R.F.C.

Prisoner of War in German hands.

2nd Lieut. A. F. Organ, R.F.C.

Previously reported Missing, now reported Prisoners of War in German hands.

2nd Lieut. R. N. Carter, Dorest, attd. R.F.C.
Lieut. L. B. Helder, R. Fus., attd. R.F.C.
2nd Lieut. K. F. Hunt, Yeomanry and R.F.C.
Lieut. R. R. Money, E. Yorks., attached R.F.C.
2nd Lieut. C. Smith, R.F.C.

Previously reported Prisoner of War, now reported Exchanged Prisoner of War and Transferred to India.

1414. Air Mech. J. Hogg, R.F.C.

Meteorology and Air Work.

IN the annual report of the Meteorological Committee for the year ended March 31st last, there are the following references to work in connection with aircraft:—

Professorship of Meteorology to the Royal Flying Corps.—In view of the importance of co-ordinating the experience of flying officers with the work of the Office and Observatories in order to obtain more effective knowledge of the structure of the atmosphere for the use of the air services, the Committee represented to the Director of Military Aeronautics the desirability of appointing a Professor of Meteorology to the Royal Flying Corps (with the rank of Major during the war). The Director of Military Aeronautics concurred, and, with the sanction of your Lordships, the Army Council approved the appointment of Lieut. G. I. Taylor, R.F.C., to that office. Major Taylor was Schuster Reader in Meteorology from February 20th, 1912. His services were lent by the Committee to the Board of Trade for meteorological work on the s.s. "Scotia," chartered for the investigation of ice in 1913. The report of the work of that voyage marks a new epoch in the history of meteorology. The mathematical aspects of work therein contained were developed and extended in an essay which obtained the Adams Prize of the University of Cambridge. At the outbreak of war Mr. Taylor was recommended to the R.A.F., and thence obtained a commission in the R.F.C. The Professorship dates from Feb. 14th, 1916, and is attached to the Meteorological Office.

Departmental Divisions, Observatories, Branches, and Stations.—All the establishments in connection with the Office have been regularly maintained in effective operation. The Branch Office at South Farnborough, which has been in charge of Capt. C. J. P. Cave, of the Meteorological Section R.E., has been specially engaged in the investigation of the occurrence of thunderstorms for the Advisory Committee for Aeronautics, with a view to anticipating their arrival in threatened localities.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

Suspension of Entrance Fees of New Service Members.

UNTIL further notice, Service Members will be elected to the Royal Aero Club without Entrance Fee.

New Club Premises.

It is hoped that the new premises of the Club at No. 3, Clifford Street, New Bond Street, W., will be opened in December.

New Members.

In accordance with the rules, the Annual Subscription of any New Member who is elected between November 1st and December 31st of this year, will cover the period up to December 31st, 1917.

THE FLYING SERVICES FUND
administered by
THE ROYAL AERO CLUB.

THE Flying Services Fund has been instituted by the Royal Aero Club for the benefit of officers and men of the Royal Naval Air Service and the Royal Flying Corps who are incapacitated on active service, and for the widows and dependants of those who are killed.

The Fund is intended for the benefit of all ranks, but especially for petty officers, non-commissioned officers, and men.

Forms of application for assistance can be obtained from the Royal Aero Club, 166, Piccadilly, London, W.

Subscriptions.

	£	s.	d.
Total subscriptions received to Oct. 31st, 1916..	10,880	14	5
J. Glen Steel	1	1	0
Sydney Schiff	5	5	0
Total, November 7th, 1916	10,887	0	5

B. STEVENSON, Assistant Secretary.

166, Piccadilly, W.

AVIATION IN PARLIAMENT.

Quality and Quantity.

CAPTAIN BENNETT-GOLDNEY, in the House of Commons on October 31st, asked the Secretary of State for War if he can say whether the War Office is satisfied with the quality and quantity of our aircraft output; if not, whether any defect or deficiency can be attributed to the present system of dual control and administration; and whether the Army Council is now in favour of a reconstructed or numerically strengthened Air Board with responsible executive powers?

Major Baird (representing the Air Board): I have been asked to answer this question. The matters to which it refers are dealt with in a Report which Lord Curzon, as President of the Air Board, has recently made to the Government. This Report is now under consideration, and it is not for the moment possible for me to say anything further on the subject.

Mr. Billing: Does the hon. gentleman propose to lay the Report on the Table of the House?

Major Baird: That question ought to be addressed to the Prime Minister.

Zeppelin Raid Warnings.

MR. BILLING asked the Home Secretary whether he has received a petition presented by the people of the town of Hertford to the chief magistrate, begging for official intimation to be given to those desiring it of the imminence of Zeppelin raids, and also asking for due notification of the passing of the danger; and, if so, what action he proposes to take?

Mr. Samuel: I have received the petition which was forwarded to me by the hon. Member, and I have communicated with the acting chief constable, who considers that the institution of a public warning would be inadvisable, as it would increase the number of persons leaving the shelter of their homes and proceeding into the streets and fields without in any way diminishing the risks. The petition had only about 400 signatures, and I understand that the desire for a public warning is not shared by the inhabitants as a whole.

Air Raids and Telephonic Communication.

MR. WATT, on November 1st, asked the Secretary of State for War whether, in view of the frequency of aircraft attacks and the primary necessity for rapidity in transmitting information as to their movements and anticipated direction, every effort is being made by the War Office to ensure at home simplicity in telephonic transmission of this information; if codes are necessary, are they of such a nature as to be easily and quickly understood by telephonists who may not as yet have had long experience or whose education may in some cases not be of the best; and are steps taken to prevent such codes leading to errors?

Mr. Forster: The answer to the first part of the question is in the affirmative. The hon. Member will, I am sure, agree with me that no information can be given as to whether codes are or are not in use.

Insurance Against Personal Injury.

SIR E. CORNWALL asked whether insurance against injuries or loss of life due to Zeppelin raids can be effected under the Government scheme?

The Prime Minister: I am much obliged to my hon. friend for putting this question, which enables me to correct a misstatement which, owing to a misunderstanding, I made in an answer I gave him on October 18th. I then implied that it was possible to insure against injuries or loss of life under the Government scheme. This, of course, is not the case. In the opinion of the Government ample facilities already exist in the open market.

Sir E. Cornwall: Will the right hon. gentleman consider the question of appointing a small committee to inquire and report as to the desirability of making this a national liability and not a personal loss?

The Prime Minister: Yes.

Zepp.-Strafing Inventors.

MAJOR CHAPPLE, on November 2nd, asked the Minister of Munitions whether he is now in a position to publish, for the help and encouragement of inventors outside the War Office and in the hope of more adequate protection of our towns and homes, details of the vulnerable structures of Zeppelins in order to assist the inventive genius of the Anglo-Saxon race in the discovery of an incendiary missile capable of being fired from a gun mounted on an aeroplane, and having the property of bursting within the envelope of a Zeppelin and setting fire to it?

Major Baird (replying for the Air Board): I have been asked to answer this question. I would refer my hon. friend to the answer which I gave him on August 23rd, to which I can add nothing.

Ash *Longerons* in F.E. 2D Machines.

MR. TOUCHE asked the Secretary of State for War whether flying machines F.E.2D are still supplied with *longerons* for which ash has to be subsituted as soon as they are delivered to the Expeditionary Force, necessitating the dismantling of the machines and causing delay?

Major Baird: The answer is in the negative. All machines now supplied to the Expeditionary Force have ash *longerons*.

QUEER thoughts assail man's brain at times. I have just been wondering whether a man ever does anything of his own free will, or whether every action he takes, from the time he is born until the time of his departure from this life, is taken because he has to take it. It appears absurd on the face of it to suppose a man cannot, at least in most things, do as he pleases. In fact, his actions throughout his whole life appear to point to it that he does please himself. But when investigation is made, and thoughts allowed to flow, it does not seem at all so certain.

Undoubtedly a man is born because he has got to be born, undoubtedly he dies because he has got to die. Here at the beginning and end of things personal, compulsion is proved beyond doubt, it cannot be a too great stretch of the imagination to suppose that it is possible all in between is governed in the same way. I am not going to flop right into a declaration of a belief in destiny, nor to deny that man is an intelligent animal capable of guiding and governing his life in certain channels, orderly or the reverse.

Within limits, perhaps within narrower limits than we think, man performs that which is popularly known as pleasing himself, but outside those limits there is food for thought as to whether he really is pleasing himself or acting under some governing power outside his knowledge and comprehension.

I really do not know why I am writing in this strain. Certainly, when I started to write these lines I had no idea of getting on to a subject so open to controversy. I felt rather in a good humour, and quite expected to find light reading flowing from my pen, yet here I am on a subject far beyond my powers to speak intelligently upon, far away from my subject of aviation, writing without the slightest idea of where it will lead me, writing thus because I feel that I have got to. Well, let it be so. Perhaps it will lead somewhere to something interesting.

These are morning thoughts. I should have written this page yesterday, but I could not. Try as I would, I could not write yesterday. This morning at four o'clock I must get up and write. No idea of why, or what I was going to write about. No lucky striking of a subject in my dreams that I must get up and put pen to paper before it is forgotten, just simply that I must get up and write, letting words come as they are coming, writing because I have got to write.

These words will be read by people interested in aviation. People interested in aviation must read of aviation. They are possibly in aviation because they had to be. Aviation itself has perhaps come because it had to come. Had it not been for aviation, Germany might not have thought herself capable of world's conquest. Yet the very power relied upon is a factor in her undoing. And now daylight is breaking on this chill November morning. With daylight should come a better understanding between my pen and my brain, making clearer that of which I would tell. With daylight should come a better understanding between the nations on this world, who should live upon it each in enjoyment of the great life it has to offer, and not fight to the death like wild beasts.

With daylight, however, I cease to dream of a world at peace, a world in which there shall be no more fighting and killing. This is not the first war, neither shall it be the last, for so long as men are born into life, so shall they fight one with the other, nation against nation until the end of all things. Fought they always have, and fight they always will, simply because it is outside their power to do otherwise, and they have got to. Yet progress, and the march of time, whilst not able perhaps to greatly alter that which must be, may nevertheless be able by the exercise of intelligence to guide the future into certain more convenient channels.

Aviation has undoubtedly played a great part in the present war, and will most assuredly play a greater one in the next, wherever it may happen to occur. It is even possible that in aviation we have the greatest factor towards an idealistic condition of things in which war shall be an impossibility. For it is thinkable, that with aviation brought to the point of perfection it will reach in a few years' time, when all nations at the first call of war will be able to take the air in swarms, war could possibly assume quite a different aspect. So I look to aviation as one of the greatest things that matter in this and the coming time, and to this country to continue to hold that supremacy of the air which she has undoubtedly achieved at the present moment.

And with the daylight of understanding should come a closer knitting together of our own flying services, for it matters not the colour of a man's coat, whether it be blue or khaki, so that he get going at his task with a more set purpose and a better knowledge of where it leads than a "Dreamer" who must needs get up in the early morning to be led anywhere his pen happens to lead him.

Munificent Gift from Mauritius.

ADDING to their previous splendid contributions towards the cost of the war, the Council of Government of Mauritius and the sugar planters have combined to present one million rupees to the Imperial Government to provide either 30 fighting aeroplanes, or be used as a contribution towards the cost of an airship.

If in doubt about anything aviatic, write to " FLIGHT *" about it.*

H. C. B. (King's Lynn).

Aeroplanes differ considerably in the way in which they take a turn, and no doubt two different pilots will handle the same machine in different ways. Some machines, notably those in which inherent lateral stability is present to a certain extent, are turned solely with the rudder, and will automatically take up the correct bank for the particular turning radius without the aid of the *ailerons*. With other machines, as for instance the Morane monoplanes, the turn is, we believe, initiated, or at any rate greatly assisted by, warping. Other machines, especially those with a low centre of gravity, may have a tendency to bank too steeply for the turn, and lateral control used to check the bank. The purpose of the spirit level on board an aeroplane is to indicate the correct bank, but as the spirit in the instrument is subject to centrifrugal force it is difficult to design one which will give correct indications under all conditions. Some pilots use a short length of string for the same purpose, a relative side-wind causing the string to point slightly sideways instead of straight back. In certain respects the string may be more reliable than the spirit level, since the centrifugal force on it is negligible, but on the other hand there may be practical difficulties of fitting the string in a place where it shall be outside the slip stream of the propeller and yet be in such a position that the pilot can see whether it is pointing straight back or slightly to one side. In a very steep bank, frequently too steep for the turn, the inertia of the machine, assisted to a certain extent by the vertical side area, tends to prevent it from side-slipping downwards, although in most cases there probably is a slight drop, which is, however, so slight as to be hardly noticeable. An exception would appear to be formed by the small and very fast scouts. When Mr. Hawker did his sharp turns round the pylons at Hendon on the Sopwith scouts, he invariably side-slipped *upwards*, and it appeared that, steep as his banks were, they were not quite steep enough for the turn. It is difficult to say what is the minimum radius of turning of a small scout. They give the impression, when handled by a skilled pilot, of turning in their own length, but in reality the turning radius is probably about 100 ft. In speaking of the gliding angle of an aeroplane, the smallest angle of which the machine is capable is usually meant, the "natural" gliding angle differing with various types and being dependent on a number of things, so that no hard-and-fast rules can be laid down. The term "Oleo pneumatic" is frequently applied erroneously to undercarriages in which the landing shocks are absorbed by springs while the rebound is checked by oil contained in a small cylinder in which works a piston. The word oleo is taken from the Latin word *oleum*, which means oil. The reasons for marking the static pressure tube of a Pitot tube "Top" are probably found in practical considerations of connecting the two tubes to the indicator instrument.

E. W. W. (Coventry).

With regard to the starting system employed for the engines of a Zeppelin, it is possible that the action of the pump mentioned in our description was not, as we stated, a positive one forcing an explosive mixture into the cylinders, but started the engine, as you suggest, by drawing air from the exhaust pipes through the open exhaust and inlet valves, thus causing a partial vacuum in the cylinders and drawing a mixture up through the inlet pipes. Arrangements were certainly provided for raising all the valves, a fact which would appear to confirm your theory. In that case provision must have been made for closing up the open end of the exhaust collector or silencer, as otherwise the pump would simply draw air in through this open end instead of through the engine. At the time of inspecting the wreck we were informed that the action of the pump was as described in the article dealing with the "L.33." With regard to the spiral "something" in the right hand bottom corner of one of our photographs of the wreck, this we are not at liberty to discuss at present.

J. H. H. (Itchen).

Steel propellers are not, as far as we know, in general use in this country, and we do not know of any manufactu er turning out propellers of this description. We presume that what you have in mind is some form of propeller made up of thin steel sheeting, double surfaced to give the proper aerofoil section, and not the steel propeller of old with two flat plates for blades. Of books dealing with the theory and design of propellers we can recommend "Air Screws," by M. A. S. Riach, published at 10s. 6d. net, which we can supply post free at 10s. 11d.

F. B. (Beverley).

You might be able to pick up a good second-hand parachute for about £10. A parachute about 24 ft. in diameter would carry a man of 12½ stone. Possibly Messrs. C. G. Spencer and Sons, 46A, Highbury Grove, London, N., would be able to help you.

A. N. W. (Southampton).

When first accepted for the R.N.A.S. an officer is known as a "Probationary Flight Officer," but on being confirmed in his rank he becomes a "Flight-Sub-Lieutenant."

G. C. B. (Broadstairs).

From the brief particulars you give, it would seem that the flying boat is a F.B.A., the successor of the Donnet-Leveque system.

A. G. B. (Beckenham).

We regret that, under the Defence of the Realm Act, it is impossible to publish the particulars you desire.

W. J. C. B. (Seven Kings).

You should apply to the Officer Commanding, R.F.C. Depôt, Farnborough.

R. C. B. (North Finchley).

(1) Eighteen. (2) Director-General of Military Aeronautics, Adastral House, London, E.C. (3) By letter.

C. M. (Cork).

Get the necessary forms from the Admiralty, and after filling them up send them to the Director of Air Services, Admiralty, S.W.

S. B. A. (Hull).

There is a Cadet Corps for the R.F.C., and you should apply to Adastral House for full particulars.

Airman (Portsmouth).

The pay of an officer in the R.F.C. when training is 7*s.* 6*d.* a day. When appointed Flying Officer it is 12*s.* a day, plus 8*s.* a day flying pay. He flies as often as he is ordered to do so.

J. S. U. (Selby).

See reply to W. J. C. B. (Seven Kings).

J. H. A. (Huddersfield).

See reply to C. M. (Cork). We do not think your age would bar you.

N. W. (Newport, Mon.).

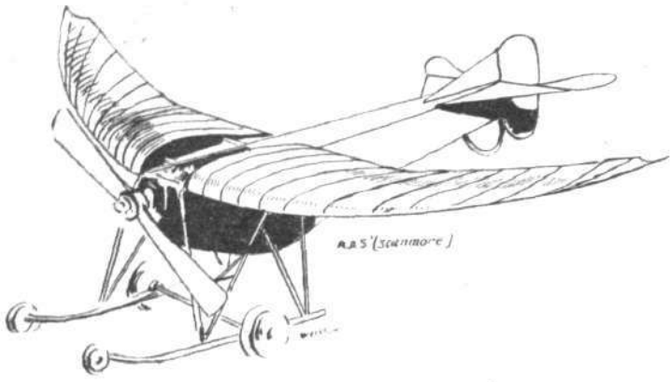
The minimum age is 18.

H. J. W. (Cradley Heath).

You would be trained at a naval flying school. Your experience should certainly help you. Get the necessary forms from the Admiralty, and after filling them up send them to the Director of Air Services, Admiralty, S.W. A Probationary Flight Officer receives 10*s.* a day and 4*s.* a day for flying risk while learning to fly; when confirmed in the rank of Flight-Sub-Lieut. he receives a further 4*s.* a day making 18*s.* 0*d.* in all.

F. S. (Yorkshire).

The possession of a pilot's certificate does not in any way guarantee a commission. For the R.N.A.S., you should apply to the Director of Air Services, Admiralty, S.W., and for the R.F.C., to the Director-General of Military Aeronautics, Adastral House, London, E.C.



A. A. S. (Stanmore).

The main planes of the Weiss monoplane were very thick at the root and tapered gradually until they were quite thin at the tips, which were, as you will see from the accompanying sketch, swept back and upturned. The tail plane was of the non-lifting type. For advantages of staggering the main planes of a biplane, see our reply to H. S. C. (Loughborough) in last week's issue.

R. S. A. (Shorncliffe).

To the best of our knowledge, the late Lieut. Warneford, V.C., was flying a Morane parasol when he brought down the Zeppelin, and it appears that the artist you mention has made a slight technical error in his otherwise wholly excellent picture of Lieut. Warneford's feat.

J. J. M. (Byfleet).

We very much regret that we are unable to furnish any particulars of the resistance of R.A.F. "streamline" wires. The results of the National Physical Laboratory tests are not now being published on account of the war. As an approximation, however, use may be made of the results of tests on various strut sections published in the National Physical Laboratory report of 1911–12, where it is stated that the resistance of a strut of elliptical section, with axes measuring 1 in. and 5 ins. respectively, was 15·2 lbs. per 100 ft., at 60 ft. per second. Assuming a fineness ratio of 5 for a "streamline" wire of $\frac{1}{8}$ in. thickness, the resistance of such a wire would be approximately 0·08 lb. per foot run, at 60 m.p.h. This figure must not be taken as representing accurately the resistance of a streamline wire, but is merely intended to give an approximate estimate.

Pay of R.F.C. Officers.

AN Army Order issued on November 3rd, announces an amended scale of pay for officers of the Royal Flying Corps (Military Wing). Briefly, the new figures are as follows:—Wing commander, 38*s.* per day; depôt commander, 30*s.*; squadron commander, 25*s.*, with 8*s.* flying pay; park commander, 25*s.*; flight commander on appointment, 17*s.* (increasing by 2*s.* a day for each year of service after June 30th, 1914, to 23*s.*), with 8*s.* flying pay; flying officer on appointment, 12*s.* (increasing by 1*s.* a day for each year of service after June 30th, 1914, to 16*s.*), with 8*s.* flying pay; adjutant,* 20*s.*; quartermaster, as laid down in Articles 238–240, with extra pay of 2*s.* a day; equipment officer, 1st class, 24*s.* 6*d.*; 2nd class, 18*s.*; 3rd class, in the case of a combatant officer the ordinary rate of pay, without flying pay, provided for a flying officer, or, in the case of a quartermaster, the rate provided for a quartermaster in this Article. He shall receive, in addition, flying pay at the rate of 5*s.* a day for each day of ascent. Flying pay under Article 223 will not be issuable whilst he is under instruction on probation.; medical officer, pay and allowances of his rank, and, if required to fly, such additional emoluments as the Army Council may decide.

* An adjutant appointed before April 1st, 1916, will remain in receipt of the rate of pay laid down in the Warrant of March 26th, 1915.

The Month's Air Fighting.

A STUDY of the *communiqués* shows that in the month of October the number of aeroplanes destroyed or damaged on the Western Front was considerably less than in September, when the total claimed by the British, French and German was well over 300. British Headquarters admit the loss of 42 machines, and claim 16 German aeroplanes destroyed and more than 23 others shot or driven down damaged. The French claim 51 brought down and 14 others forced to land. On the German side 62 Allied machines are claimed plus 5 defeated. On October 23rd it was stated that "22 enemy airmen were shot down in air fights and by anti-aircraft fire; 11 are lying behind our lines."

The American Escadrille on the Somme.

THE correspondent of the *Times* with the French Army has given some details regarding the American Escadrille, which has now been shifted from Verdun to the Somme front. Since its formation in May, the squadron has accounted for 22 enemy machines—five of them having been brought down by Adjudant Raoul Lufberry—whilst they have lost two killed and three wounded. The squadron now consists of 14 American Volunteers, who use French machines, and are under the orders of French officers.

Air Work in Flanders.

FROM its frontier correspondents, the *Telegraaf* learns that Allied aviators, by their continuous activity, have done considerable damage to military works and depôts south of Brussels, in the neighbourhood of Hal, and between Ath and Enghein, as well as to railway communications in Hainault.

Bucharest-Salonica Air Line.

ALTHOUGH the Roumanian forces and the Allied Armies at Salonica are not yet in actual touch with one another, the *Idea Nationale* of Rome learns from a Russian source that Roumanian communications with Macedonia and Salonica are firmly established, thanks to the excellent air service.

A Derelict Balloon Over Norway.

IT was reported from Christiania on November 3rd, that a burning balloon, supposed to be British, apparently one sent up from a warship for observation purposes, was seen on October 31st from Livter, 49 miles E.N.E. of Christiania. The balloon came from the sea, passed over the coast, and finally came down on a moor. The fate of the crew, if any, was unknown. The remains of the balloon have been brought to Farsund (50 miles west of Christiansand).

Balloon Struck by Lightning.

THE special correspondent of the *Times* with the Serbian Army, reports that in the stormy weather on October 30th, one of the Serbian observation balloons was struck by lightning. The observer escaped by means of his parachute, and landed in the Serbian lines with nothing worse than a sprained ankle.

A Double Fatality.

AT an inquest on Flight-Sergt. Daniels and Corpl. Luck, on November 4th, it was stated that the former was instructing the latter, on a new machine, when it crashed to the ground from a height of 80 ft. Luck was said to be piloting the machine, and Daniels tried to get hold of the control lever, but Luck would not leave go. Both men died later from their injuries, and the verdicts of "Accidental Death" were returned.

Famous French Pilot Missing.

THE French flying service has lost a valuable pilot in Sergt.-Major Lenoir, who is reported missing. He has several times been mentioned in *communiqués*, and up to three weeks ago he had destroyed eleven German machines.

The Funeral of Captain Boelcke.

WITH full military honours the funeral service for Capt. Boelcke, whom the Kaiser has described as "my bravest and most successful air officer," was held at Cambrai Cathedral on October 31st. Among the wreaths was one inscribed, says the *Lokalanzeiger*, "From the British Officers who are prisoners of war at Osnabrück. October 28th, 1916."

In a letter, dated October 24th and published in the *Cologne Gazette*, Capt. Boelcke wrote: "Here, on the Somme, is the real airman's El Dorado. When the weather is in any way fine the whole sky is full of Englishmen."

AIRISMS FROM THE FOUR WINDS.

WITH the proof of the will of the late Mr D. H. G. Chambers, of Atherton, Sydenham Road, Croydon, at £16,955 last week, the memory of the eccentricities of a curious Surrey recluse, whose chief hobby was matters aeronautic, is revived. Most of the money goes to the erection of almshouses, but not within 50 miles of Croydon Town Hall. Bequests are made to religious societies, anti-vivisection societies and the Dogs' Home. Mr. Chambers had for many years lived quite alone at Atherton, a house of about sixteen rooms. His sister, Miss J. M. Chambers, B.Sc., after whom the almshouses are to be named, shared the house with him till her death. He had apparently left her things absolutely undisturbed, writes a correspondent of the *Morning Post*. The house was securely protected against burglars. Half-inch iron bars, firmly embedded in the masonry, were on the basement windows. The back portico had an iron gate, and every outer door had padlocks, chains, wire nets, bolts and screwed-down shutters. Moreover, the tenant kept four six-chambered revolvers handy, with ammunition. To callers the front door was only opened upon a chain. The tenant's simple fare consisted largely of patent cereal foods.

Mr. Chambers and his sister must have travelled widely. They left behind about forty trunks, hold-alls and the like including several venerable carpet bags. There were Continental time-tables, guide-books and pocket dictionaries sufficient to take the owners over the larger part of Europe. The books showed intellectual tastes. Anatomy, philosophy and physics had been studied; photography, chemistry and the uses of electricity. Aeronautics, however, seemed to have been the chief hobby. Many notes and diagrams were the work of Miss Chambers, and there was a big collection of newspaper cuttings on the subject. In a large building in the garden labour had been bestowed on all kinds of "contraptions," from big kites to small aeroplanes. The effects found there included a rotary aeroplane engine and various sets of aluminium biplane wings. Oiled calico, bundles of bamboo rods, and rolls of wire netting were among the material, with elaborately made woodwork sundries, all evidence of patient toil. A gondola-like box suggested an attempt at a man-carrying machine. At the auction these effects went at lumber prices. Miss Chambers had suffrage sympathies, and had tried literary composition. She had printed a garden

A propos of the paragraph which appeared in "Airisms" on page 883, October 12th, in regard to the ultimate effect upon the Panama Canal of the appearance of the U-boats in American waters, and the suggestion of the possibilities of aircraft assisting nature in the years to come in destroying the canal for naval purposes, a correspondent from "Somewhere in France" sends us this very suggestive sketch as a dream which he dreamt after reading the few remarks.

reverie, "The Triumph of Weeds." It is the tragedy of flowers choked by "seeding, lolling, crawling, sprawling, breeding" weeds, the authoress lamenting that "everything worthless seems to do nothing but breed."

WITH the arrival of a batch of Allied aeroplanes at Bucharest, the activities of the German airmen have suddenly ceased. With an aerial base at Rustchuk, only 40 miles from Bucharest, the enemy was able during the latter part of September and the early part of October to give the latter town little rest. Taubes twice a day and a Zeppelin at night was the daily menu. Evidently the German sportsman prefers to catch his bird sitting, rather than on the wing.

WHY all this sudden fuss in the papers about the "new" three-seater aeroplanes? Surely, there is nothing very wonderful or startling in a "gun-'bus" with accommodation for two gunners in addition to the pilot. We recollect seeing machines of this description months ago, and the disposition of crew and armament is the only common-sense one if a free field of firing in all directions is to be obtained. It is no doubt gratifying to the public generally to know that our Allies have such excellent fighting machines, but it must not be thought from the glowing accounts, that these are the last word, either on the other or on this side of the Channel.

IN an account published in an American contemporary, of the development of the Zeppelin airship, we suddenly discovered the reason for the many mishaps to airships of the "Zepp." type. The material of which the framework of the first Zeppelin was made had, it is stated in our contemporary, a tensile strength of 33 kilograms per square metre! It must have been made of mangel-wurzels.

IT is evidently not an unmixed blessing for a neutral to be engaged in helping the Germans out with their aircraft production. Mijnheer de Waal, the Dutch pilot, who is connected with the Fokker works at Schwerin, has applied to the German Government for leave in order to go home to Holland to finish his military service. This was refused, and the German Authorities requested the Dutch Government to grant De Waal exemption, which the Dutch Government promptly refused to do. Now the German Authorities are less inclined than ever to let De Waal go back.

ONCE a *nouveau riche* in England complained about aeroplanes flying over his grounds because they frightened his pheasants. He has probably grown to have greater respect for them these times. A Colonel—and, therefore, presumably a gentleman—in Bedfordshire, under what appear to be outrageous conditions, deliberately shot the dog mascot of some troops manœuvring over his ground, because, he said, it was after his rabbits. And the punishment meted out by his brother magistrates to this "sportsman," was a 40s. fine! Wonder what it would have been had it happened to this Colonel's dog.

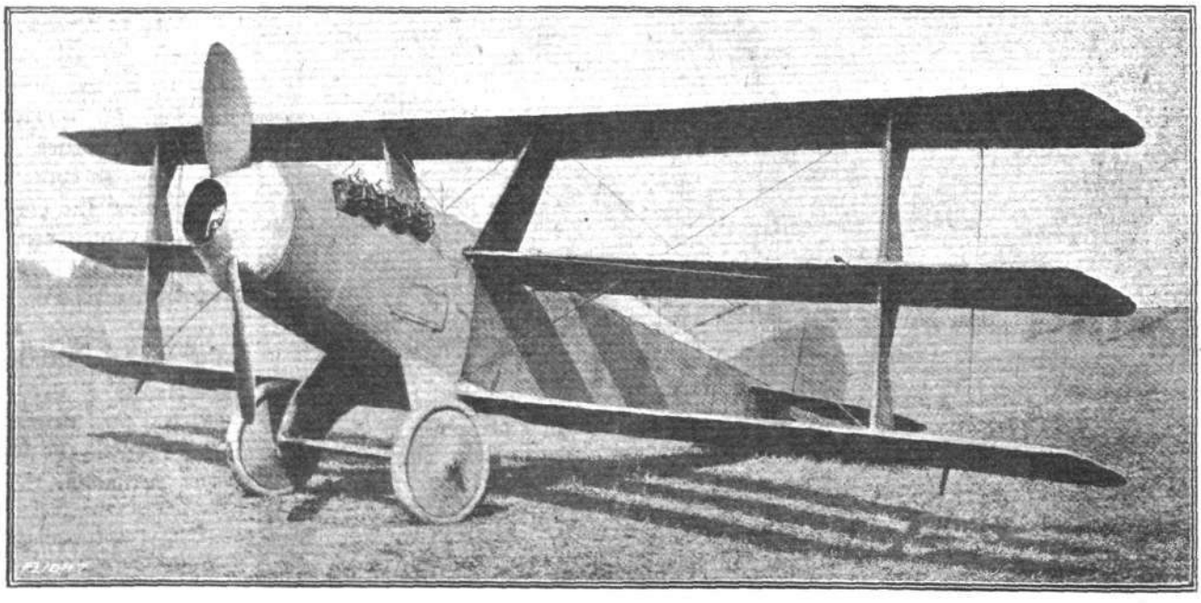
A REMINDER of how time passes is the *Times In Memoriam* notice of the anniversary of the death of Lieut. Edward T. Busk, who lost his life on November 5th, just two years ago. The science of aviation has had to mourn a very valuable loss against that date.

AEROPLANE building is making rapid strides in the countries of the Central Empires. Factories are multiplying at an alarming rate in both Germany and Austria-Hungary, and one of the latest to start business in a big way is at Budapest. There, with a capital of £125,000, it is stated, machines, fully equipped, will be turned out by the hundred six months hence, and even before starting, orders were in hand to keep the factory full up for a couple of years. It is about time our own Air Board policy was definitely settled to counteract such extensions as this.

THE R.F.C. contributed the chief item at the National Sporting Club on Monday night, in the form of a fifteen-round contest between Corpl. Burrows and Air-Mechanic Watts. What win there was fell to Burrows, but the corporal punishment was hardly as much in evidence as the inclination for hugging. A better display from the R.F.C. representatives had been hoped for.

"FOUND!" Mr. W. R. Cadogan-Rothery, of 4, Hendon Park Villas, Golders' Green, writes, under date November 1st:—"I have found a cane with the crest of the Royal Flying Corps embossed on the metal cap; and beneath same, the initials of the owner. If the gentleman to whom the above belongs will communicate with me, I shall be pleased to forward the cane in question."

WHAT a revelation to the initiated would a visit to some of our munition factories be. Those who have not, so far, "sampled" this new and remarkable phase in the life of these islands, would have a great shock—although the shock would not be of the shell character, but rather one of agreeable astonishment. Side by side with girls of humble origin, girls who have all their lives been accustomed to work of a kindred character, stand women of many stages in life—some of sturdy health, others used from their birth to surroundings refined and delicate. But all the same, in the



The latest Curtiss speed scout—a triplane—four of which have been ordered by the U.S. Army. Briefly, the dimensions are: Span, 25 ft.; overall length, 18 ft.; chord, 24 ins.; gap, 28 ins.; gross weight with fuel and water, 1,060 lbs.; speed, 120 m.p.h.; climb, 10,000 ft. in 10 mins. It is fitted with a Curtiss OXX-2 motor, streamline wiring is used throughout, and the shock-absorbers are also streamlined.

munitions shop, all distinctions go by the board. Each and every one is there to help along the boys—in how many cases with the thought of one particular boy added—fighting the good cause in the trenches.

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WITH an insight into the conditions of munition factory workers, therefore, it does not come as a great surprise that an appreciative factory-hand audience, and a packed one at that, can be reckoned upon to listen in rapt enjoyment at the best musical numbers, as rendered by artistes of distinction. So it comes about that down away in Kent, the special theatre which Messrs. Vickers, Ltd., have erected for the sole present purpose of relieving the monotony of the munition workers' self-imposed task, is the scene of many an entertainment that would draw a big paying audience at Queen's Hall. The directors of the firm have thought with generosity in supplying this great safety-valve against the strain of the war work going on, and last week the Vickers' employees, or as many as could be gotten into the theatre, had a special treat, in being able to listen to a delightful recital by the Russian pianist, M. Sapelinikoff.

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THE occasion was the more interesting as, by reason, no doubt, of Vickers' vast business connection with Russia, a party from the Russian Embassy was present in the balcony, whilst a presentation of a gold cigarette case to the Russian pianist by Count Ostrorog, a director of Vickers, Ltd., formed an agreeable interlude in the programme. M. Sapelinikoff's interpretation of the Russian and French pieces which he selected was not only appreciated by his mixed audience, but appeared to be thoroughly understood, so judiciously chosen has been the fare provided at the little theatre. Altogether a very happy evening, varied by some songs from Miss Gladys Moger, the permanent pianist of the theatre, Miss Walker sympathetically accompanying the singer.

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A propos of Russia, the latest claimant to be the original inventor of the "Tanks" is a native of that country, A. Porokhovtchikoff by name. But as the plans of his "land Dreadnought" were not submitted to the Russian Government until August, 1915, he would appear to be about on a par with some of the claimants this side of the water. After the documents recently circulated by Mr. Macfie upon the subject, it will be interesting to see what some of the other suggestors of these fearsome beasts have to say in reply.

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STATE responsibility for aircraft damage is once more to the fore. We have little hope of any reversal of the policy hitherto in force, although a sop has been thrown by the recent consent of the Prime Minister to hear arguments upon the subject of loss of life from Zepp. raids. On the property insurance point Mr. Asquith has again refused to be interviewed.

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THAT much appreciated "stoggy" bread of Winters, Ltd., referred to a week or two back in Capt. Challoner's letter from his Bavarian prisoner-of-war camp, does not after all appear to be so good by reason of its being a "home-made" article. We learn from Messrs. R. Winter, Ltd., of Birmingham, the makers, that it is a much rarer vintage than that. In fact, they have sent us a sample, and we must confess ourselves more than pleased with its qualities, and we are not surprised at it being sought after by our unfortunate men at present in durance vile in the land of the Huns. Mr. Winter points out that the firm's bread is of quite a unique character, being a highly malted food, which has the property of keeping for a very long time under any reasonable conditions.

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OH! those Zepps. A solicitor, defending a client summoned upon a charge of milk adulteration recently, put up the novel defence that the cow that yielded the milk had been affected by a Zeppelin raid to such an extent that her milk had secreted a smaller proportion of solids than usual.

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IN commenting upon this pump story, the writer of "A Londoner's Diary" in the *Evening Standard* holds forth as follows:—

"This defence was derided at the time; but there was something in it. I have learned from a medical friend that in a certain suburb of London, after a raid, the local medical men noted seven cases of women with infants at breast who had been so terrified that they could no longer suckle their offspring, because their milk had largely turned to water under the influence of their fright. This physiological fact may be set to the credit of some suspect milk dealers, but it would not be wise for them to build too much on it."

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We endorse the advice given in the last paragraph. The London magistrate is a contrary creature, anyway.

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LORD BERESFORD is of the "ton to ton" shipping brigade. Speaking at Edinburgh the other day, he said he was anxious about the enemy's submarine campaign, and advocated that we should tell the enemy that they would have to pay one ship or two for every one sunk if they went on with their campaign, and, if need be, we would take their whole mercantile marine. Hear, hear!

A SPANISH VIEW ON OURSELVES.—"Opening of the hunting season."
(Campana de Gracia, Barcelona.)

TEN YEARS AGO.

Excerpts from the "Auto." ("FLIGHT'S" *precursor and sister Journal) of November 3rd, 1906.* "FLIGHT" *was founded in* 1908.

M. SANTOS DUMONT'S FLYING EXPLOIT.

After two attempts in the morning, in which M. Dumont was apparently not satisfied with the speed attained on the ground, he went out again in the afternoon of October 23rd (after effecting a slight repair) at about half-past four. Then, after getting up a good speed on the ground, he slightly tilted the forward tail of the machine upwards, and without a hitch of any kind soared gradually upwards to about 5 metres above the earth, and maintained that elevation for a little over 60 metres at a speed of about 40 kilometres per hour, when, becoming nervous (and no wonder), he cut off the ignition, and the machine sank gradually without any particular suddenness to the ground . . . It is satisfactory to learn that M. Santos Dumont has himself become converted to the necessity of employing rudders behind, and we understand that his machine when it next appears will probably be equipped with one or more. When asked how he proposes to manipulate them, he declared, possibly in fun, that as his hands would be occupied in managing the vertical tail, he intended to tie a string round his neck to work the rearward rudder.

THE ARCHDEACON CUP OFFICIALLY AWARDED TO M. SANTOS DUMONT.

At their sitting of October 26th, the Commission d'Aviation of the Aero Club of Frence decided that although it was impossible to measure the actual distance flown by M. Santos Dumont on the 23rd of the month, that it was clearly more than 25 metres, and they accordingly allotted to him the Archdeacon Cup. They also heartily congratulated M. Santos Dumont on his exploit, and have arranged to give him a banquet on the 10th of November.

THE NEW MILITARY AIRSHIP SCHOOL.

The celebrated 1905 Lebaudy airship has been taken back to Moisson, and is to be there employed for training the members of the Army Aeronautical Department in their various duties, to form in fact, the centre of a military aeronautical school, which will be under the supervision of Commandant Bouttieaux and Captains Voyer and Bois.

LEBAUDY, 1906.

The 1906 Lebaudy airship, which has been ordered by the French War Office from Messrs. Paul and Pierre Lebaudy,

is nearly ready for delivery. The gas-vessel is 60 metres in length, and the diameter at the thickest part is 10·3 metres, the capacity being 3,150 cubic metres. The power of the motor has been increased, the new airship being provided with a 70 h.p. Panhard-Levassor motor, thus giving an increased power over its predecessor of some 20 h.p., so that it is anticipated that both the speed and radius of action of the new airship will be a good deal greater than that of the machine it is replacing.

THE ZEPPELIN AIRSHIP.

Count Zeppelin is so satisfied with the reliability of his present airship that he contemplates making an extended circular tour from Manzell, on the Lake of Constance, to Stuttgart, returning over the Black Forest to Basle and Zurich, and thence back to the starting point. This will be a journey of, roughly speaking, 250 miles, and if successfully accomplished it will certainly show that the Zeppelin airship is all that its admirers claim it to be.

UNDER *the above heading will be published weekly particulars of a personal character relating to those who have fallen or have been wounded in the country's service, announcements of marriage and other items concerning members of the Flying Services and others well known in the world of aviation. We shall be pleased to receive for publication properly authenticated particulars suitable for this column.*

Casualties.

Second Lieutenant CUTHBERT JOHN CREERY, R.F.C. (who was killed in an air fight on October 20th), was second son of Mr. Andrew McCreight Creery and of Mrs. Creery, of Vancouver. He was twenty-one years of age, and received his commission in December, 1915, while he was gazetted flying officer in April last.

Lieutenant J. CEDRIC JERVIS, R.F.C., who was killed on October 26th, aged 26, was the son of the Rev. J. Jervis, vicar of Snitterfield, Stratford-on-Avon. He was educated at King Edward's School, Birmingham, and was preparing for Holy Orders at the Scholæ Cancellarii, Lincoln, when the war broke out. He was one of four brothers who offered their services (one is now a prisoner in Turkey). He enlisted in the Royal Fusiliers Public Schools Battalion, in which he obtained his commission, and transferred to the Royal Flying Corps.

Captain LAWRENCE HOPE KING-HARMAN, Royal Horse Artillery, attached R.F.C. (killed on active service), was the elder son of Sir Charles and Lady King-Harman and grandson of General Sir Robert Biddulph, G.C.B., G.C.M.G. Born in 1889, he was educated at Bradfield College and the Royal Military Academy, Woolwich. He obtained his commission in the Field Artillery in July, 1909, and joined his battery in India. In June, 1915, he was selected for the Royal Horse Artillery, and took part in the Mohmand Expedition on the North-West Frontier, for gallant conduct in which he was mentioned in despatches. Early in this year he responded to a call for volunteers for training as observers in the Royal Flying Corps in India, and proceeded to Mesopotamia in June last, attached to that branch of the Service. On arrival at the front he was placed in temporary command of a field battery, and rejoined the R.F.C. shortly before his death. He was killed in an accident while flying on October 26th.

Second Lieutenant ROBERT SHIRLEY OSMASTON, M.C., Royal Sussex Regiment and R.F.C., was the son of Mr. and Mrs. Francis P. Osmaston, of Stoneshill, Limpsfield, and grandson of Mr. John Osmaston, late of Osmaston Manor, Derby. He was born in 1894, and educated at Earleywood Preparatory School, Ascot, and Winchester College (Kingsgate House), where he gained the gold medal for gymnastics in 1912, and was an excellent boxer. He had a short course of agricultural training after leaving Winchester, and when the war broke out enlisted as a private in the U.P.S. Brigade. In May, 1915, he obtained his commission in the Royal Sussex Regiment, and went to the front on December 1st, 1915. Early this year he was an instructor of Lewis gun training and later acting adjutant of his brigade, and was attached to Brigade Headquarters learning staff work. In April he conducted a raid into the enemy trenches very successfully and without any casualties, and was shortly afterwards awarded the Military Cross. In July he transferred to the R.F.C. and served as observer till he was killed.

WILLIAM BELL SAINT, Second Lieutenant, Royal Scots, attached R.F.C., who has been killed, was the younger son of Mr. and Mrs. H. B. Saint, Selborne, Monkseaton, and was aged 23. Lieutenant Saint joined a public school battalion in September, 1914, and eight months later obtained a commission in the Royal Scots. In January of this year he was attached to the Flying Corps as an observer, and he went to the front in May.

Lieutenant JAMES ALEXANDER SIMPSON, R.F.C., who has died of wounds, was the eldest son of Mr. James Simpson, bank agent, Portree. He returned from the Malay Peninsula soon after the outbreak of war, and received a commission in the Black Watch, afterwards joining the Flying Corps. Lieutenant Simpson was educated at Portree and Aberdeen Grammar School, and was several years on the staff of the Meteorological Observatory, Cape Town. He subsequently held a similar appointment in the Malay Peninsula.

Second Lieutenant FRANCIS GEORGE STUART WATSON, Lancashire Fusiliers, killed on October 27th, was the only son of Mr. Alexander Watson, architect, and Mrs. Watson, of Villa Languard, Torquay. He entered Sandhurst in August, 1915, and received his commission on January 26th last. After taking a three months' course of flying with the R.F.C., he joined his regiment and went to the front on June 15th. He was 19 years of age.

Lieutenant SYDNEY HAYWOOD, R.F.C., who was on October 26th killed as the result of an aeroplane accident on active service, was the elder son of Charles and Ethel Haywood, "Greycroft," Accrington. His age was 25.

Married and to be Married.

The marriage between Captain H. ERIC DIXON, Middlesex Regiment and R.F.C., and Miss MURIEL A. SEYMOUR METFORD will take place quietly on November 18th at 2.30 p.m. at Christ Church, Lancaster Gate, W.

The engagement is announced between RICHARD HILTON, Lieutenant, R.G.A. and R.F.C., second son of Mr. J. E. Hilton, of Lambourne, Berks, and PHYLLIS MARTHA, eldest daughter of the Rev. and Mrs. STANLEY H. WOODIN, of Yarmouth Rectory, Isle of Wight.

NEVILLE B. MANSON, Lieutenant, London Regiment, attached R.F.C., was on Wednesday married to Miss MAUD TALBOT, at All Saints' Parish Church, Hove.

The engagement is announced of TANNER M. ROGERS, Lieutenant, General List, attached Aeronautical Directorate, only son of Mr. and Mrs. Montagu Rogers, of Nansloe, Helston, Cornwall, and RACHEL FRANCES, second daughter of Mr. and Mrs. KEVITT ROTHERHAM, Great Gatehouse, Kenilworth.

Items.

The Rev. WM. AITKEN HASLAM, who joined the R.F.C., is well known in South London. He is a son of the late Rev. J. W. Haslam, vicar of the Peek Memorial Church, St. Saviour's, Denmark Park. Previous to his ordination, Mr. Haslam was attached to St. Saviour's. His first curacy was in Lewisham, and he afterwards served at Epsom, Battersea, Wandsworth Common, and Long Ditton.

FLIGHT

AIRCRAFT WORK AT THE FRONT.

OFFICIAL INFORMATION.

British.

War Office, October 31st.

"*Salonica.*—Our naval aeroplanes dropped bombs on the railway bridge at Simsirli (east of Drama), and damaged it."

General Headquarters, November 1st, 9.12 p.m.

"Yesterday our aircraft did some useful work in reconnaissance and in bombing enemy batteries. One hostile machine was driven down in a damaged condition, and one of ours is missing."

General Headquarters, November 2nd, 9.10 p.m.

"A number of enemy batteries were bombed yesterday by our aircraft. One hostile machine was driven down damaged, and one of our own machines is missing."

War Office, November 2nd.

"*Salonica* (*Doiran Front*).—Janes Station was bombed yesterday by hostile aircraft, but no damage was incurred."

General Headquarters, November 3rd, 9.32 p.m.

"Yesterday, in the course of combats in the air, two enemy machines were destroyed."

War Office, November 3rd.

"*Salonica* (*Struma Front*).—Bursuk has been successfully bombed by our airmen."

"*Mesopotamia.*—On November 1st a hostile aeroplane was bombed and destroyed by one of our machines."

General Headquarters, November 4th, 9.12 p.m.

"Yesterday our aircraft successfully bombed many enemy billets. One of our machines attacked and destroyed a hostile aeroplane, but was in turn attacked and fell inside the enemy lines. Four others have failed to return. The strong westerly winds of the past three weeks have made our aerial operations difficult, since they drift our machines far over the enemy front, and compel them to return slowly against a head wind."

General Headquarters, November 6th, 9.39 p.m.

"Yesterday, in spite of the gale, our aircraft did useful work in observing for the artillery. One machine was in the air for over three hours."

French.

Paris, October 31st.

"*Balkans.*—British aircraft bombarded important enemy depôts at Demir Hissar."

Paris, November 1st.

"On the Somme front yesterday two German aeroplanes were brought down by our pilots in the course of aerial fights."

Paris, November 2nd.

"In spite of the mist and the gales which have prevailed on the greater portion of the front, our chaser-planes displayed activity yesterday. On the Somme Warrant Officer Tarascon brought down his seventh enemy machine, in the direction of Moislains. One of our three-seater aeroplanes brought down on the same day two German machines, which fell one in the aerodrome of Metz-en-Couture and the other at Mont St. Quentin. In the region of Verdun a German machine was brought down near Hogneuville-en-Woevre by Warrant Officer Sayaret, This is the sixth machine brought down until now by this pilot. One of our attacking squadrons attacked with machine-guns an infantry column of the enemy in the direction of Azannes and some trains in the region of Conflans and Mangiennes. Finally, in Alsace, one of our pilots attacked four German machines, and brought down one, which came crashing to the ground near Altkirch."

Paris, November 3rd.

"On the Somme front one of our three-seater aeroplanes which was attacked in the region of Hallaines by a group of six enemy machines succeeded in bringing down one. One of our chasing squadrons which had come without delay to the help of our machine brought down a second enemy aeroplane and forced the others to take to flight. A German machine, struck by a shell from our anti-aircraft guns, fell in the forest of Nonnepruck (west of Mulhouse)."

Paris, November 4th.

"During yesterday, on the Somme front, Lieutenant Heurtaux brought down his eleventh enemy machine near Rocquigny, and Sergeant Sauvage his sixth. The latter fell near Mesnil-en-Arronaise. A third German aeroplane was brought down in the district of Mesnil-Bruntel by one of our pilots."

"*Balkans.*—One of our aeroplane squadrons bombarded the enemy encampments north of Monastir and near Prilep."

Paris, November 6th.

"British aeroplanes dropped several bombs on Bogdantai."

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SIDE-WINDS.

BIG trees from little acorns grow, is an old saying, and there are several illustrations of it in connection with the aviation industry. Last Saturday the Fellows Magneto Co., Ltd., called together their friends to help in the formal opening of their new works at Cumberland Avenue, Park

Royal, and although the factory as it stands at present is of no mean size, it was divulged that the extensions which are now going up will increase it by some 250 per cent.! That is an achievement of distinction, and no wonder Mr. Douglas Fellows and all associated with him were in great form in displaying not only the new factory, but also the splendid magnetos which are now being turned out and creating such a demand, that it is a case of "all hands to the pump" to keep up the pace. After the visitors had been shown round the shops, there were light refreshments and music, and during an interval Mr. Alleyn, Mr. Fellows' co-director, made a most stirring speech, in which he emphasised how necessary it was, if we were to win the trade war, for investors who had hitherto been content to rely upon gilt-edged securities to come forward and encourage commercial enterprises which had shown themselves worthy of support or gave promise of being developed into successful business concerns. Mr. Alleyn also expressed appreciation of the co-operation of all the workers in building up the concern which only a year or two ago was a repair shop for magnetos. Mr. Alleyn also indicated that the firm are not trammelled by any old-fashioned ideas, and indicated that, successful as the firm had been, there was no intention of resting on their oars. Altogether it is a case of "keep your eye on Fellows," of Magneto fame.

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CONGRATULATIONS to Mr. Herbert Austin, the founder and indefatigable Managing-Director of the Austin Motor Co., Ltd., who attained his fiftieth year on Wednesday last.

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CHANGES and improvements in the Curtiss 160 h.p. VX motor, which, it will be remembered, has eight cylinders, 5-in. bore by 7-in. stroke, have led to such an increase in the power output, that it will in future be designated 200 h.p., and the new series will be styled VX-3. One of these motors

in a recent one hour's test averaged 210·26 h.p., with a gasoline consumption of ·528 lb. per h.p. hour, while the oil consumption was ·844 U.S. gal. per hour.

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MR. H. WHITE-SMITH, of the British and Colonial Aeroplane Co., Ltd., has been appointed the representative of the Society of Motor Manufacturers and Traders on the Sub-Committee for Research on Aircraft Steels.

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SUNDRY references which have been made in these columns from time to time to the wonderful results of the Barimar scientific welding process in dealing with seemingly hopeless smashes, have led to sheaves of inquiries from all parts of the kingdom. Many of the inquirers, in their desire to assist Messrs. Barimar, in quoting send along rough sketches of the parts which require repairing, but the firm point out that although in ninety-nine cases out of a hundred successful repairs can be made, it is impossible to quote prices for such work with any degree of accuracy from such sketches. The quickest and best plan is to send the fractured part, carriage paid, to Barimar, Ltd., 10, Poland Street, Oxford Street, London. Expert opinion with price and date of delivery, will be sent by return post. Will readers kindly note?

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THE last formal function to be held during the Mayoralty of Sir Charles Wakefield took place on October 31st in the form of a luncheon given to the Mayors of the London boroughs. Among the guests were Mr. Harry Hawker, to whom the Lord Mayor presented a handsome gold medal in commemoration of the plucky performance under difficulties which he gave before a party of a thousand wounded soldiers at the Karsino, Hampton Court, on August 12th last. Gold medals were also presented by the Lord Mayor to Squadron Commander R. D. F. Paul "in recognition of his valued assistance," and to Platoon Commander A. J. Wilson "with full recognition of his great organising abilities," these two officers of the London Volunteer Rifles having organised the general and transport arrangements respectively. Mr. Carl Hentschel, Secretary of the London Volunteer Rifles, who organised the concert programme, and Mr. Frank Fisher, who acted as Master of Ceremonies, on behalf of the Lord Mayor, received similar presentations.

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THE November monthly stock list of Aircraft Supplies, Ltd., is to hand, and is full of good things, as usual. One interesting item is a reproduction of a certificate recently obtained in connection with a test of 4 × 44 Binet type strainer, which sustained an ultimate load of 45·7 tons per square inch of body of the eyebolt, while one of the steel eyebolts was bent over double without cracking. By the way, the firm are now in a position to supply ribs, spars, and other wood parts in large quantities for aircraft of R.A.F. or private design, and they also offer quick deliveries. Arrangements have also been completed for the supply of metal fittings and timber for Bessoneau collapsible hangars.

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THOSE who are patiently, or impatiently, expecting the new list of standard A.G.S. parts, which is being got out by Aircraft Supplies, Ltd., will have to wait a few days longer. In order to make the book even more complete than was originally intended, the publication has been held up, but it is expected that it will be out early next week. The list will include all the most important items in what are known as R.A.F. aeroplane general supplies, and each part will be illustrated by reproductions of actual photographs and blue prints. Specifications, fits and limits, complete dimensions and R.A.F. material specifications of all mark numbers will also be given. As it should prove invaluable for reference purposes, every firm in the industry should make certain that their name is down to receive a copy. All that is necessary is to send an application to the Secretary, Aircraft Supplies, Ltd., 17, John Street, Theobald's Road, London, W.C., or 166, Piccadilly, W. Do it now.

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MODELLISTS should note that Messrs. T. W. K. Clarke and Co., Ltd., of 29-33, High Street, Hampton Wick, Middlesex, are still able to supply models and accessories, but owing to abnormal conditions there is a little difficulty in obtaining some materials, such as aluminium. This may entail taking a little longer than usual in executing some orders, and the indulgence of customers is therefore requested should there be any unavoidable delay in this way.

COMPANY MATTERS.

NEW ISSUE.

Fellows Magneto Co., Ltd.

THE prospectus is issued this week of this Company offering for subscription £50,000 8 per cent. cumulative preferred shares, which, with a capital of £75,000 in 50,000 preferred shares of £1 each and 50,000 ordinary shares of 10s. each, was formed to take over as a going concern, as from July 1st, 1916, the business of Messrs. Fellows and Co., magneto manufacturers and repairers, of 99-103, Horseferry Road, Westminster, and of Willesden. The preferred shares are entitled, in addition to the 8 per cent. cumulative dividend, to 20 per cent. of the net profits which it is decided to distribute as dividends in each year after payment of 8 per cent. on the preferred. The prospectus states that the Company has Government orders in hand to the value of £22,443, and the War Office has notified its preparation to give the Company a running order for 400 magnetos per month and spare parts. The Company values this order at about £84,000 per annum. A large increase in the output is being arranged; additional machinery to the value of £10,000 is being laid down and a new factory is being extended at a cost of £5,000. The net profits of the business of Fellows and Co. for the year ended June 30th last are certified to have amounted to £3,482, excluding partners' drawings but including cost of experimental work, on a capital of less than £8,000. The purchase price paid to the vendors was £20,000 in 40,000 fully-paid ordinary shares and £1,000 in cash, and an option was given them to subscribe for the 10,000 unissued ordinary shares at par at any time during five years from June 30th, 1916. The Treasury has intimated that it raises no objection to this issue, and the Company has every indication of a good industrial investment.

THE directors of Brown Brothers, Ltd., have declared an interim dividend of 2½ per cent., free of tax, on the ordinary shares in respect of the profits for the year 1916.

NEW COMPANIES REGISTERED.

GLENDOWER AIRCRAFT CO., LTD., 3, Glendower Place, South Kensington, S.W.—Capital £3,000, in £1 shares.

R. G. PAGET AND SON, LTD.—Capital £5,000, in £1 shares. Acquiring business of a maker of aeronautical shed covers, tents, &c., carried on by J. C. Paget, at 49 and 50, Aldersgate Street, 21, Albion Road, and 36, Newington Green, all in London, as "R. G. Paget and Son." First directors: J. C. Paget, T. W. Nickalls, H. O. Wells, and C. E. White.

R. G. TOMS AVIATION AND MOTOR CO., LTD.—Capital £2,000, in £1 shares (1,000 preference). Acquiring the business of R. G. Toms, manufacturers of aeroplanes, airships, &c. First directors: R. G. Toms, J. Hopper and C. F. Hemingway.

FROM THE BRITISH FLYING GROUNDS.

Grahame-White School, Hendon.

STRAIGHTS last week with instructor: Messrs. Balden, Child, Flynn and Kent. Circuits and landings with instructor: Messrs. Green, Hitchcock, Kaizer, Munro, Norris, Ranson, Robertson, Rogers, Sutherland, Travers, Whiteman and Wood. Circuits alone: Lieutenant Steeves.

Instructors: Messrs. Manton, Winter, Pashley, Biard, and Hale.

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